THE RAILWAY GAZETTE AND Railway News
A JOURNAL OF RAILWAY MANAGEMENT, ENGINEERING, OPERATION AND RAILWAY NEWS.
with which are incorporated
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DIESEL RAILWAY TRACTION

A Supplement illustrating and describing developments in Diesel Railway Traction is presented with each copy of this week's issue

Selling Railway Service

ELSEWHERE in this issue we reproduce an advertisement prepared by Mr. G. A. Walker, Manager and Engineer of the Kowloon-Canton Railway, British Section, which is appearing twice weekly in the Hong Kong local press. It was inspired by the unsatisfactory goods traffic due to competition from the river boats, and in the directness of its appeal and its note of personal contact between salesman and purchaser it is an excellent example of the application of the spirit of modern advertising to railway requirements. Particular attention should be paid to Mr. Walker's emphatic statement that "we *sell* transportation." There is a considerable difference between the passive possession of goods for sale and the active selling of them. In the past, perhaps, there has been too marked an attitude on the part of the railways to wait for customers, a spirit which only energy and leadership such as is exemplified here can wholly eradicate among a staff largely brought up in the old tradition. But salesmanship to-day no longer consists solely in proclaiming one's wares. With so many siren voices courting his attention, it is unsafe to expect from the customer any more exertion than is required to dial a telephone number. The railway mountain must await for the consigner Mahomet to indicate his interest and then drive home the advantage by personal contact.

The Twenty-four Hour System

Lord Lamington is unwearying in his advocacy of the 24-hour system of time-keeping, and we hope that in time the travelling public will make it abundantly clear to the Government that this method is really wanted. Directly the public shows unmistakably its wishes in the matter the railways will be ready to adopt it, but they have no desire to force it on at best a half-willing clientele. In a recent letter to *The Times* Lord Lamington points out the airways time-table prints the times given for the air services, including those for home flights, on the 24-hour system, and, so far as we know, there have been no complaints of this departure. The fact is that many of the public in this country are afraid that the 24-hour system in railway time-tables will upset all the usual methods of calculating time for purposes other than travelling. On the Continent, where the 24-hour system is in force generally for time-tables, there is no abandonment of the 12-hour system in ordinary speech. A passenger in France, for instance, if desiring to proceed by a train at 16 o'clock would be perfectly understood if he asked for the train leaving at *quatre heures soir*. However ingenious the means of distinguishing between a.m. and p.m. in railway time-tables may be, there is always the risk of error, especially in night-journeys on Saturdays and Sundays to or from Scotland and Ireland.

* * * *

The Week's Traffic

Last week's traffics include the takings of the L.M.S., Great Western and Southern Railways for the Friday, Saturday, and Sunday, and of the L.N.E.R. for the Friday and Saturday, preceding the August Bank Holiday, and are strictly comparable with the corresponding week in 1933, when handsome increases were shown under each head of traffic, though, of course, the 1933 week compared with an ordinary week in 1932. For the 31 weeks of the current year the combined traffics of the four companies amount to £87,299,000, an increase of £3,891,000 or 4·66 per cent.

	31st Week				Inc. or dec.	
	Pass. &c.	Goods, &c.	Coal, &c.	Total.	Year to date	
	£	£	£	£	£	%
L.M.S.R. ..	+ 55,000	+ 11,000	+ 1,000	+ 67,000	+ 1,632,000	+ 4·86
L.N.E.R. ..	+ 19,000	+ 8,000	+ 7,000	+ 34,000	+ 1,572,000	+ 6·50
G.W.R. ..	+ 15,000	+ 3,000	− 3,000	+ 15,000	+ 417,000	+ 2·94
S.R...	+ 8,000	+ 2,000	+ 2,000	+ 12,000	+ 270,000	+ 2·36

Mersey Railway traffics for the week show a decrease of £143.

* * * *

Railway Returns for 1933

In two respects the method of compiling the railway returns of British railways for 1933 recently published by the Ministry of Transport differs from that adopted in previous years. Because of the financial year of the London Passenger Transport Board ending on June 30, while that of all other railways ends on December 31, figures for the railways now forming part of the London Transport undertaking have been excluded from the aggregated totals for Great Britain and corresponding adjustments have been made in the comparative figures of previous years. Secondly, approval was given during the year to an alteration in the basis of apportioning general charges to be operative as from January 1, 1933. This change has necessitated certain alterations of the comparative figures for 1931 and 1932. Gross receipts from railway working amounted in 1933 on the new basis to £149,642,627, a decrease of £5,562 compared with 1932. From ordinary third class passengers the receipts were £36,811,990, an increase of £464,323, receipts from parcels under 2 cwt. and excess luggage improved by £255,481,

and minerals and merchandise (Classes 1-6) brought in £11,661,956, an increase of £982,435. Apart from small increases under second-class ordinary and under workmen's tickets, other heads of traffic showed decreases. In railway expenditure there was a saving of £2,104,987 and the operating ratio fell from 83·68 per cent. to 82·28 per cent. In maintenance of way and works and rolling stock the total expended decreased by £2,069,371, but, as the net amount transferred to renewal and suspense accounts was £1,563,475 more than in 1932, the expenditure charged in the year showed a net reduction of £505,896. Locomotive running expenses were reduced by £653,301, and traffic expenses by £990,332.

* * * *

Overseas Railway Traffics

So far as currency receipts are concerned the position of the British-owned Argentine railway companies has materially improved during the past fortnight, and the rate of decrease in the weekly sterling receipts has been notably lowered for the Buenos Ayres Great Southern and the Buenos Ayres Western. The latest returns are based on an average of 17.39 pesos to the £ as against 17·42 for the previous week, the improvement in exchange being due to better prices for wheat and maize. Of the four companies three now show better traffics to date in pesos, but the Great Southern is still 129,000 pesos behind. Canadian Pacific gross earnings to the end of July show an increase of £1,412,200, and its net earnings for the half-year to June 30 improved by £638,800.

Railway.	No. of Week.	Weekly Traffics.	Increase or Decrease.	Aggregate Traffic.	Increase or Decrease.
		£	£	£	£
Buenos Ayres & Pacific	5th	70,845	– 18,155	353,437	– 89,957
Buenos Ayres Great Southern ..	5th	132,317	– 12,221	626,344	– 219,857
Buenos Ayres Western	5th	46,578	– 1,884	222,189	– 63,866
Central Argentine..	5th	131,685	– 8,357	649,853	– 108,231
Canadian Pacific	30th	687,000	+ 35,600	13,585,400	+1,412,200
Bombay, Baroda & Central India	17th	131,400	+ 11,175	2,726,475	+ 119,250

* * * *

The Railways of France

As it is six years since the previous Department of Overseas Trade Report on Economic Conditions in France was issued, it is appropriate that in the newly issued Report by Sir Robert Cahill, Commercial Counsellor to H.M. Embassy, Paris, no fewer than 26 pages out of a total of 722 should be devoted to railways. Within these 26 pages is packed a concise summary of all the principal railway developments in the eventful years since 1928. There is not one of these important matters that has not duly received attention in THE RAILWAY GAZETTE at the time of its occurrence, but it is very handy to have such a summary available for reference, and to the ordinary student of French economic conditions the summary could scarcely be improved. It must, to judge from the very few slips, have been prepared by a fairly competent expert. In referring to the technical advantages represented by mechanisation it is stated that " the use of machines for pulling up grass and weeds " saved a certain railway system 11,000,000 francs in one year. We imagine that even the most ingenious mechanical device for *pulling up* vegetation would be more expensive than the ordinary hoe. The method of weeding adopted with great economy for several years past is, of course, that of chemical destruction. It may be taken as an indication of the reliable character of this work that we have found no more serious matter to criticise.

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U.S.A. Railroad Costs and the " New Deal "

It is estimated that an increase of $359,000,000 a year in U.S.A. railroad expenses may be anticipated as a result of " recent Acts of Congress and other developments in connection with the national policy of stimulating upward trends of commodity price levels," according to a statement issued by the American Association of Railway Executives. The restoration of cuts in wages will increase operating costs by about $156,000,000, payments under the recent Pension Act will cost about $66,000,000, and the increased cost of materials due to the rise of commodity prices will involve the railroads in an additional $137,000,000 a year, making up this total to $359,000,000. The problem of the executives is to find means for increasing their revenues to meet these increased costs, in the making of which they have had little or no participation. In this problem they are limited by the strict federal and state regulation imposed upon them. The " new deal " policy, which is so greatly increasing their expenses, has made no allowance for the fact that although other industries have been encouraged to increase prices the railroads cannot raise their rates without legal sanction. The railroads have set up committees to study the situation. The best way to increase revenue is, of course, to carry more traffic, but the possibility of more traffic depends upon individual purchasing power.

* * * *

More Motor Cartage

The fact that the orders for motor vehicles now being placed by the Great Western Railway include 190 of the three-wheeled tractors—generally referred to as mechanical horses—emphasises the rapid progress which is being made in the mechanisation of the cartage equipments of the railway companies. Especially is this so when it is recalled that we have recently recorded the ordering by the L.M.S.R. of 294 and by the L.N.E.R. of 312 such tractors. We have already given details of the complete mechanisation of L.N.E.R. goods depots in London and Manchester and these additions to the G.W.R. equipment will be used in substitution for horses. The G.W.R. South Lambeth depot has only motor vehicles, the 32 horses remaining at Swansea are soon to go, while a start will soon be made in changing over from horses to motors at Paddington and Smithfield goods depots, and the places in the country to be affected by this G.W.R. policy include Staines, Shrewsbury, Brixham, Ilminster, Wiveliscombe, Malmesbury, Chester, Haverfordwest, St. Austell, St. Ives, Buckfastleigh, and Penzance. The 206 vehicles of the orthodox types also included in the G.W.R. £156,500 order, will be used for augmenting the country lorry services, for speeding up and increasing collection and delivery services, for railhead distribution and for special contract and heavy haulage work. Details of the orders are given on page 240.

* * * *

Road Licences for Welding Lorries

An important ruling has been given by the Ministry of Transport in regard to the application to welding lorries of the licensing requirements of the Road and Rail Traffic Act. Under that Act licences are required for goods vehicles which are defined as " motor vehicles constructed or adapted for use for the carriage of goods." The Act did not make any special provision for welding lorries, but the Road Traffic Act of 1930 provided that welding plant permanently fixed on a motor lorry did not constitute a load, but was to be deemed to form part of the vehicle. The question therefore arose whether welding lorries would require to be licensed under the 1933 Act, and the point was put to the Ministry of Transport. We understand it has now been made clear that vehicles carrying welding plant which is a permanent or essentially a permanent fixture are not goods vehicles within the meaning of the

Road and Rail Traffic Act, 1933, unless they are constructed or adapted for the carriage of goods in addition to the welding plant. Welding lorries, therefore, are not affected by the restrictions and conditions which the 1933 Act imposes on licensed vehicles.

* * * *

A Novel Polish Time-Table

It is generally considered that the railway time-table is too prosaic a publication to be endowed with the graces lavished upon other forms of publicity matter. Few are tempted to read one for pleasure, and it is widely accepted as a somewhat tedious preliminary of travel instead of a stimulus thereto. A time-table which attracts by its cover and holds the eye and the imagination with its contents is, therefore, a welcome novelty, and now comes to us from the Polish State Railways in the form of a combined railway guide and gazetteer. In addition to the usual particulars of services and sectional maps, both printed with excellent clarity and calculated in themselves to break down the old prejudice against looking up trains, there are sixteen pages of half-tone illustrations and numerous drawings showing places of scenic and other attractions to the tourist. These are supplemented by a general description of the country, in English, French, and German as well as Polish, and notes on places of interest in each of the five main divisions of the State Railways. In a forthcoming edition it is hoped that these, too, will appear in translation. The attractively coloured cover shows on the front a train, motor-coach and aeroplane, together with a seaside impression, and on the back an Austro-Daimler express railcar linking the murky atmosphere of an industrial district with the clear air of the mountains.

* * * *

Engineering History

In an age in which not only the well-being but also the actual continuance of life of millions of people is dependent upon engineering efficiency, there is both inspiration and also technical value in the orderly and public preservation of historic machinery. The jubilee of the first Parsons steam turbine and high speed dynamo, invented by the late Sir Charles Parsons, falls this year, and the historic machine is being prominently displayed near the entrance hall in the Science Museum, South Kensington, until the end of September. The Science Museum has for long housed many irreplaceable treasures of this kind, and its position is in certain respects unique. Commercial engineering, however, owes so much to the North East Coast that it is natural for a local museum of a similar character to be established in Newcastle-on-Tyne. The project was fostered by Sir Charles Parsons and it is appropriate that the scheme should be brought to fruition during the present year, and also that the new Industrial and Science Museum of the North-East Coast should house a 2-ft. model boat, propelled by elastic and clockwork, with which Sir Charles carried out experiments on a Tyneside lake before proceeding with the construction of the historic vessel *Turbinia*. The museum, which was handed over last month to the city of Newcastle, also contains a section of the original rail from the Stockton & Darlington Railway.

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Signalling Activity in Germany

When travelling recently in Germany we noticed how the new programme of accelerations has stimulated work in the signal department of the Reichsbahn. The general speeding up of services and the introduction of railcars has made it necessary to move the distant signals further out and to fit the new three-indication type described in our issue of November 17, 1933. This work has already been completed on most routes. At the same time, the wire pulleys are being provided with neat protecting hoods of sheet metal, to minimise interference with their operation in winter weather. The problem of working a home signal and its distant to three positions on one transmission, even with the double-wire system, is one that will probably lead at length to a modification of the existing apparatus. While the new distant signals meet a long-felt want, the drivers on the Bavarian lines regret the abolition of the former type, in which the disc folded into a small semaphore for "proceed." We noticed many new signal boxes, one of which is illustrated on page 226, under construction, and on numbers of the old signals the lattice work arms were giving place to the new solid enamelled type, with improved visibility. Many shunting prohibition signals have been fitted with the yellow " stop and wait " signs, and on the Berlin Stadtbahn the recent modification in the shade of the green light signals was to be seen.

* * * *

A German Signal-box

The architectural pendulum has recently been swinging so far from traditional ornamentation that it has knocked against the stop of crudity; to those who listen anxiously for the steady tick-tock of reasonable design we commend the photographs of the new German signal-box to which we refer above and which appear on page 226. Here we have form, balance, rhythm, and efficiency quietly expressed. Long and short work bind in the corners of a firm base, and on it sits a well-proportioned superstructure, in which the window voids are set in strong surrounds. True, the corners are unsupported visually, but we must forgive the pendulum a quiver or two after so rough a jolting; and to an ancient eye the windows look as if they have been put in upside down, but it may be that thus the horizontal glazing bars cut not across the signalman's line of sight. The wide and shallow sprocketting of the eaves keeps down the roof to a height that looks just right and prevents it from striking a discordant note in the general theme of horizontality. Some of our own new signal-boxes show such a marked advance in design that we can with complacency look upon this very successful German example and give it an ungrudging meed of praise.

* * * *

Locomotive Boiler Repairs

In the discussion which followed the reading of a paper by Mr. R. I. Kirkland at the Institution of Locomotive Engineers on " Locomotive Boiler Repairs in Headquarters' Shops." Mr. Holcroft remarked that, in view of the fact that the cost of locomotive boiler repairs was one of the main items in the upkeep of locomotives, good design was of the utmost importance. In designing a boiler it was necessary to pay close attention to the circulation of the water, so that there should always be plenty of " solid " water at the hottest places to conduct the heat away and prevent rapid wear liable to result from overheating. The late Mr. Churchward attached great importance to this point at Swindon, and always made sure that there was plenty of area at the bottom and sides of the boiler for the water to pass freely along and fill up the front water leg. He increased the width of the tubeplate to give plenty of room between the tubes, and enlarged the cross-section of the boiler at the point where the generation of steam was greatest, his object being to have the water against the copper plates as solid as possible because the effervescence of steam bubbles is far greater there than at any other point. Mr. Holcroft gave it as his opinion that pitting or corrosion at the bottom of the barrel was entirely due to local stresses set up by changes of temperature; in other words, the method of introducing the feed water into the boiler was to blame.

London Passenger Transport Board

A PROVISIONAL statement for the first financial year ended June 30, 1934, has been published by the London Passenger Transport Board in accordance with Section 3 of the London Passenger Transport (Interim Financial Arrangements) Act, 1934, in the circumstances hereinafter set out. The London Passenger Transport Act, 1933, provides that "the board shall cause proper accounts and other records in relation thereto to be kept, and shall prepare an annual statement of accounts in such form and containing such particulars and compiled in such manner as may from time to time be prescribed by the Minister." In addition, under regulations made by the Minister of Transport, the board must pay interest due upon the London Transport C stock in respect of any financial year within a period of three months from the end of such year. The London Passenger Transport Act, 1933, provides for the pooling of the whole of the passenger receipts of the board and the passenger receipts of the four main line railway companies attributable to passenger journeys between any two stations within the board's area, subject to the deduction of certain operating and other allowances. The work in connection with the preparation of such a pooling scheme has necessarily involved the extraction and compilation of a considerable amount of data, and it has not been possible, within the time stipulated in the Act of 1933, to complete the scheme, which under the provisions of that Act is to operate retrospectively from July 1, 1933. In addition, the London Transport stock to be issued in consideration for the transfer of certain undertakings to the board has still to be determined, so that the total stock cannot yet be ascertained. In these circumstances the board has not been able to comply with the requirements of the Act of 1933, in respect of the publication of its accounts for the first financial year and the payment of interest upon the London Transport C stock for that year. With a view to meeting this situation the board promoted in June last the London Passenger Transport (Interim Financial Arrangements) Bill in which it sought both an extension of time within which the accounts for the first financial year must be prepared, audited, and published, and authority to make a payment on account of interest on London Transport C stock in respect of the first financial year based on an estimated balance of the revenues applicable to the payment of such interest.

The London Passenger Transport (Interim Financial Arrangements) Bill received the Royal Assent on July 12, 1934, and in accordance with its terms the board has prepared a provisional statement of the estimated balance of its revenues applicable to the payment of interest on the London Transport C stock for the first financial year ended June 30, 1934. In arriving at this balance of its revenues, the board has made full provision for all charges in so far as such charges are applicable to the year and also such provision or reserve as it deems adequate and proper for any sums which may become payable either under the pooling scheme to be established with the main line railway companies, or by way of interest on any London Transport stock to be subsequently issued by the board as consideration for the transfer of certain undertakings, which, when issued, will carry interest for the whole or part of the year ended June 30, 1934, and for any other contingencies. After making such provision, the estimated amount available for meeting certain payments to local authorities, &c. (£42,850), and interest on all Transport stocks is £4,778,782, out of which a sum of £4,027,194 is required for the senior Transport stocks. The estimated balance of the revenues applicable to the payment of interest on London Transport C stock is £708,738, sufficient to make a payment on account of the interest for the year ended June 30, 1934, at the rate of 3 per cent. Interest at this rate, less income tax at 4s. 6d. in the £, will be paid by the board's registrars, the Bank of England, on September 10, 1934, to all holders of London Transport C stock registered or inscribed in the books of the Bank of England at the close of business on August 10, 1934.

The nominal amount of London Transport stock issued and outstanding at June 30, 1934, was as follows:—

	£
London Transport 4½ per cent. A stock ..	23,597,318
London Transport 5 per cent. A stock ..	16,263,950
London Transport 4½ per cent. T.F.A. stock	12,583,000
London Transport 4½ per cent. L.A. Stock ..	9,835,036
London Transport 5 per cent. B stock ..	23,463,900
	85,743,204
London Transport C stock	23,624,607
Total	£109,367,811

In addition to the railway, tramway, and omnibus undertakings of the Underground Group, the undertaking of the Metropolitan Railway Company, the tramway and light railway undertakings of the local authorities within the board's area of operation and 45 independent undertakings which had been transferred to the board before the close of the first financial year, there have since been transferred two more scheduled independent undertakings. Nine more scheduled independent undertakings still remain to be transferred. The amount of the consideration to be paid by the board for the undertakings of the local tramway authorities, with the exception of the Hertfordshire, London and Middlesex County Councils and the County Borough of West Ham; Thomas Tilling Limited, and Tilling & British Automobile Traction Limited; and the scheduled independent omnibus undertakings in Central London had not been finally determined on June 30 last. Under the provisions of Section 16 of the Act of 1933, the board refused consent in respect of the operations of certain omnibus and coach proprietors, wholly or mainly within the board's special area, and in consequence the board was required to purchase the whole or parts of the undertakings concerned. Negotiations have been concluded with 57 of such proprietors and their operations within the board's area (mainly on the outskirts) transferred to the board for agreed consideration in cash. In seven further cases the transfer has been completed, but the consideration has not yet been determined.

* * * *

Whither Industrial Art?

IN the Forest of Art there are too many trees, and from the lost and bewildered there arises a confused sound of voices. A new Spirit of the Age is abroad, before the old one has been decently interred, and through the Forest seductive voices echo, calling. Industrial designers peer here and there, searching for the true direction of advance. Towards what horizon are they looking, and in what forms will they clothe the things of everyday? To those who in this confusion strain their ears for the call of a calm clear voice we recommend Mr. Norman Bel Geddes' recent book "Horizons," wherein he tells us what he thinks will be the trend of art. He is a modernist in the sense that he refuses to be bound by precedent, and in setting out to design the many things he has designed—motor cars, railway trains, aeroplanes, theatres, restaurants, gas cookers—he proceeds upon a logical plan; first, to discover what basic purpose the subject is to serve; second, how to fulfil that purpose efficiently and economically; and third, how to mould that fulfilment in

a pleasing outward form. All else is extraneous and, if that, to be eschewed. When commissioned to design, be it a theatre or a wireless cabinet, he dismisses from his mind all past models, after noting their deficiencies, and meditates upon the problem as if it were a new one, finding out the essential needs and then proceeding to satisfy them by means of the most appropriate of the many materials now available.

After years of designing in the medium of the American theatre Mr. Geddes turned his attention to other forms of human activity; he therefore came to railway rolling stock with a mind untrammelled by engineering training and his designs are worthy of close study. True, vast strides have been made in the design of rolling stock since our ancestors took a stage coach and placed it upon rails, but basic principles have not yet routed conservative instincts. Recognising that increased efficiency means that a train can travel faster than now for a given horse power, or travel at the same rate as now for a less power, Mr. Geddes proposes a train as completely streamlined as the limitations of length, height, and width will allow. He mentions Mr. Gresley's L.N.E.R. semi-streamlined locomotive No. 10000, but he goes steps further. To decrease weight and windpressure Mr. Geddes proposes aluminium for the covering of the coaches, he rounds the front of the engine and encloses all projections within the metal skin. The rear coach is tapered off to avoid eddies and becomes an observation car. The whole train has a smoothly rounded contour, with fixed windows, for Mr. Geddes advocates air-conditioning for every train. The planning of his coaches, being based on American principles, looks additionally unusual to our English eyes, but its accommodation is spacious and luxurious, for, as Mr. Geddes truly says, space and comfort can be more easily and economically provided in a railway train than in any other type of land transport.

If such a train were made what would be the reaction of the travelling public? Some would no doubt express dislike at first, but there would be those whose sense of craftmanship would respond to the sight of a thing achieving the simplest expression of its purpose. And with the novelty of the new shape worn off all would look upon present day rolling stock with much the same amused smile with which pictures of the earliest carriages are viewed. But in such a matter the artistic designer must have the last word; the engineer's work is done when the machine performs its work with utmost economy of materials and power, and in collaboration with the engineer the artist can contain that efficiency in an æsthetically satisfying form. For Mr. Geddes—in speaking of mural decoration—expresses the very essence of design when he says " there is a great difference between a wall surface kept *simple* in the hands of a fine, sensitive designer and one that is only left *bare* by a less able man." Yes, that is it, simplicity has a charm that does not exist in the crudity of mere bareness, and the meaningless attempts of " less able men " to copy simplicity are doing a disservice to modern art. As Mr. Geddes remarks, the design of most things is evolved not from fitness for purpose but from precedents that had a different use; for instance, motor cars from the horse drawn vehicle, and wireless cabinets from the gramophone with storage cupboard for records. The fundamental object of a railway train is efficient movement from place to place, as it is of the aeroplane, on which mouldings and ornaments would offend our sense of fitness; if our railway executives were to cast aside all thoughts of past principles and were to produce a train artistically designed in accordance with the latest theories in aerodynamics then in one direction at least the horizon of " beauty in purposeful simplicity " would seem appreciably nearer.

Northern Railway of France

THIS company, serving the ports of Calais, Boulogne, and Dunkerque and the rich mineral and industrial areas in the north-east of France, continued to suffer from the general industrial depression on its French lines of 3,830 km., aggravated by the unrestricted competition of road and water transport. Similar conditions and a reduction in transit traffic also affected the earnings of the Nord-Belge Company—controlled by the Nord—which has lines of 170 km. in length serving Liège, Namur, Dinant and Charleroi. Gross receipts on the French system in 1933, as shown by the report, were 5·45 per cent. less than in 1932 and working expenses were reduced by 5·05 per cent., but there was a net loss on working as compared with a small profit in 1932. On the working of the two Ceinture lines of Paris, the company had to bear a loss of fr. 5,128,299 in 1933 compared with about fr. 4,600,000 in 1932. The result of the year's operations on the Nord system in France has been that after meeting all charges, including capital charges of fr. 571,643,539, there is a deficit requiring a claim of fr. 608,717,848 from the Common Fund, comparing with a claim of fr. 544,744,313 in 1932. The dividend for 1933 is 85 fr. on each 400 fr. ordinary share, the same as in 1932, but comparing with 100 fr. in 1931. The working of the Nord-Belge lines in 1933 resulted in a deficit of 21,710,297 Belgian francs, as compared with a deficit of 33,652,552 Belgian francs in 1932. The point at issue between the Belgian Government and the Company was decided in May, 1933, by the Belgian Court of first instance in favour of the Government's contention that the Namur-Liège concession expires in 1941, and not in 1953 as maintained by the railway company, but an appeal against this decision is now pending.

In passenger numbers in 1933 there was an overall decline of 5·7 per cent., though in Anglo-French passenger traffic there was an increase of 7·7 per cent. notwithstanding the growth of competition by air between London and Paris. Reference is made in the report to the improvement in the speed and connections of local trains and to the popularity of pneumatic-tyred and other railcars on certain routes. Petite vitesse tonnage was only 1·8 per cent. less than in 1932. Successful efforts were made to retain and regain traffic, but tariff concessions involved some sacrifice of petite vitesse revenue, which was altogether 6·19 per cent. less than in 1932. A close watch was kept over expenditure and the continued adoption of modern methods brought in substantial economies coupled with greater efficiency. The slight increase in passenger train kilometres was due to additional services of railcars, and to a very small extent to the introduction of all steel stock the weight of which necessitates a reduction in train lengths. Figures in the accompanying table refer to operations in France:—

	1933	1932
Kilometres open	4,000	4,000
Total train-kilometres	54,457,837	54,806,959
Operating ratio, per cent.	100·20	99·77
	Francs	Francs
Passenger receipts	384,121,434	394,948,013
Grande vitesse	166,639,959	179,759,064
Petite vitesse	1,228,139,653	1,309,147,003
Gross receipts	1,847,328,123	1,953,928,315
Traffic expenses	608,482,678	637,203,342
Materiel et traction	912,510,001	985,479,546
Way and works	300,882,825	295,401,637
Total expenses	1,851,018,321	1,949,391,662
Net receipts	Dr. 3,690,198	4,536,653

To the above-mentioned loss on working of fr. 3,690,198 must be added fr. 4,199,531 the ⅓ share payable to the State Railways in respect of net earnings of the Amiens-Rouen line.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

The Geared Steam Locomotive

20, Iddesleigh House, S.W.1.
August 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In your issue of July 6 there appeared an Editorial on "The Geared Steam Locomotive," concluding:—

". . . owing, however, to the absence of coupling rods, the turning effort at the driving wheels will still be of the kind obtainable from a two-cylinder engine. The locomotive proved itself on trial more than equal to the duties expected of it, and we think that, slightly modified to permit the use of coupling rods, it is just the kind of unit needed to handle trains having frequent stops at a high average speed."

You, Sir, would be the first to admit that no mechanism however perfect should be added to a machine unless it would assure some tangible advantage, and I feel sure, in common with all locomotive engineers, would only concur in the use of coupling rods on the orthodox locomotive because without them these machines would generally be impracticable.

But as a mechanism for coupling two or more axles coupling rods are by no means perfect, for inherently the respective axles must vary in alignment, cannot remain truly parallel, and they should not be constrained to run at the same rate of revolutions having regard to variations in tread dimensions whether due to errors in machining, to wear, or to the position of wheel relative to the gauge.

Moreover, the reciprocating masses impose severe loads on the mechanism and on the rails and road bed. It is known that under test bed conditions the mechanical efficiency of coupled engines is fairly high and possibly a fair average efficiency may be obtained in service at the expense of frequent overhauls to running gear and tyres. The rapid rate at which wear occurs in coupling rod bearings, axleboxes, &c., is evidence of high frictional losses.

From observations made on a British railway with units which were run for some months with axles coupled and then for several further months with axles uncoupled (the adhesion being adequate for the latter case) on precisely the same services and as nearly as possible the same conditions, the performance proved to be from 10 per cent. to 11 per cent. better and the coal consumption about 12 per cent. less when the axles were not coupled. The results when uncoupled were so definitely superior that the railway decided to dispense with the coupling gear, which incidently had been provided to meet the possibility of lack of adhesion due to winter conditions.

When a locomotive is driven by one large engine, and generally when driven by two, the turning effort could not be absorbed by the first pair of drivers except at the expense of unduly loading these or when the tractive effort is relatively small, and therefore coupling rods *must* be employed, but it is noteworthy that only so many axles are coupled as will provide the necessary adhesion factor.

It is, of course, recognised that the total turning effort and also total variation in turning effort in a Sentinel locomotive will be as great as in a locomotive driven by one two-cylinder engine and having the same tractive effort, but in the latter the peaks in turning effort occur four times per revolution whereas in a Sentinel locomotive geared 4-1 they occur sixteen times per revolution, and the inertia of the wheels and axles is more effective in smoothing out the torque curve. Relatively few orthodox locomotives have all axles coupled thereby making use of the entire locomotive weight for adhesion.

By employing two or more small engines, each geared direct to an axle as in Sentinel locomotives, it is possible to utilise the entire locomotive weight for adhesion, and coupling rods are no longer a necessity; nor yet in most cases *could* they provide any advantage, because generally the minimum weight to which the locomotive can be built, having regard to structural conditions and durability and to the braking requirements of the train, provides an ample factor of adhesion. Thus, there being no necessity for coupling rods nor any advantage to be gained from them, there is no point in fitting them and incurring both the additional cost of manufacture and maintenance.

It is conceivable that for an isolated special service, such for example as in hump shunting, when a very high tractive effort is required at low speeds and a high engine power is unnecessary, there may prove to be an advantage in using fewer engines than axles, and for such service the Sentinel design does provide for coupled axles in order that the full locomotive weight is available for adhesion.

W. H. WOOLNOUGH

International Comparison of Railway Fares

Bickley, Kent, August 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—International comparisons of standard fares are somewhat unsatisfactory as a guide to the cost of rail travel in different countries owing to the varying incidence of reduced fares, and when exchange rates are unstable, as at present, it is almost impossible to measure the relative levels of fares. The note, containing information published by the *Journée Industrielle*, which appeared on page 208 of THE RAILWAY GAZETTE for August 3, would seem liable to convey a somewhat misleading impression as to the present position.

The figures quoted appear to suggest that British railway fares are much higher than those prevailing in France, and whilst there was, prior to 1932, a substantial difference in favour of France, the abandonment of the gold standard by Great Britain has gone a long way towards eliminating this difference. The British coefficient of increase is therefore no longer 1·50 but approximately 0·92, so that at current rates of exchange British fares measured in gold are slightly below the pre-war level.

The French coefficient of 0·68 is even more misleading as it relates to the basic fare leaving out of account the transport tax which has to be paid by all passengers and consequently influences fares as quoted to the public. Moreover even for the basic fare the coefficient of 0·68 is no longer accurate as French fares were raised on November 1, 1933. Prior to that date the coefficient of increase was 3·4 on the basis of the paper franc or $\frac{3\cdot4}{5} = 0\cdot68$ on gold. As, however, there was a tax of 32·5 per cent. on passenger tickets, as against a pre-war tax of 12 per cent., the relative level of charges was roughly 1 : 0·81. The figure of 0·68 was quoted by the French railways for the perfectly reasonable purpose of drawing attention to the fact that one of the reasons for their failure to earn the full interest on their capital was the low level of passenger fares after the tax had been deducted from the price of the ticket.

Concurrently with the increase of fares in November the tax was reduced from 32·5 per cent. to 12 per cent., with the result that the price of tickets remained unchanged, and it is presumably this fact that has led the *Journée Industrielle* to repeat the old figure. The present position is that the coefficient of increase on a paper basis is 4·025 so that the gold relationship is $1 : \frac{4\cdot025}{5} = 1 : 0\cdot805$, that is to say, when allowance has been made for rounding off, the increase is unchanged compared with the figure prior to November, 1933, which took into account the incidence of the tax.

As international comparisons of railway fares may have some influence upon tourist travel as well as upon general questions affecting the fixing of passenger fares, it would seem desirable that tables of this description should explain the basis on which the figures are prepared. In the interests of brevity comment has been confined to the British and French positions.

E. D. BRANT

PUBLICATIONS RECEIVED

Manual of Argentine Railways for 1934. By Sir Stephen Killik. London: Effingham Wilson, 16, Copthall Avenue, E.C.2. 76 pp. and map. Boards 2s. 6d. net.—This is the 29th annual issue of a publication which all investors in Argentine railways should possess. In his review of the Argentine railway year which ended in June, 1933, Sir Stephen Killik refers to the many trying experiences through which the railways passed in the shape of reduced traffics and exchange difficulties during that period. These have, of course, been intensified during the financial year just closed, and the question of remittances is even more urgent. The review explains the formation of the United Kingdom and Argentine 1933 Convention Trust which gave appreciable relief in the matter of remittances, and points out that the policy of depreciating the peso has created an entirely new relationship between the English-owned railways and the Argentine Government. While still full of confidence in the future of Argentina, the review warns railway investors that a good deal of lost ground has to be recovered before they can look forward to a return of real prosperity for their undertakings. Full particulars are again given of 15 railway companies, their geography, working arrangements, capital, and traffic. The different systems are clearly indicated on the map, which includes useful insets of railways in and around the cities of Buenos Aires, Bahia Blanca, and Mendoza.

Permanent Way Through the Khyber. By Victor Bayley, C.I.E., C.B.E., M.Inst.C.E. 1934. London: Jarrolds Publishers (London) Limited, 34, Paternoster Row, E.C.4. 9½ in. × 6 in. 287 pages. Price 18s.—This is another very readable book recently written by an Indian Railway officer. There is not a dull page in it, and the narrative cleverly combines descriptions of the North-West Frontier Pathans, their country and the technical features of the Khyber railway construction. Anyone who knows "The Frontier" will agree that Mr. Bayley's pen-pictures of the tribesmen are very true to life. Even to those unacquainted with either railway technicalities or Indian life, the story throughout is vivid and arresting, and, if there is occasionally some slight tendency towards too vivid colouring, this is justifiable as enhancing the readability of the work by all and sundry. From the engineering standpoint the description of the nature of the soil encountered is not exaggerated, and the peculiar difficulties encountered due to the construction taking place in tribal no-man's land are accurately described. We are glad that Mr. Bayley has in his book drawn attention to some of these and other specially difficult features of the work carried out as matters of routine by British engineers in such far-distant outposts of Empire. As a technical description of the surveying, earthwork, bridgework and tunnelling on this remarkable construction, the book is of considerable interest to the engineering reader, though it is a pity there is so much reiteration of certain points in it which events subsequent to the construction have proved to be somewhat inaccurate. Also, judging by damage done to the line in more recent years, Mr. Bayley's graphically depicted prize storm now no longer holds the record! However, these are details in such a wealth of interesting matter and we can strongly recommend engineers and laymen (and women) alike to read these personal experiences of a railway engineer.

Horizons. By Norman Bel Geddes. London: John Lane, The Bodley Head Limited. 10½ in. × 8 in. 293 Pp. 222 Illustrations. 18s. net.—Mr. Geddes is an American designer. The artistic expression of suitability for purpose is his aim. His principle is that in setting out to design anything, whatever it may be, the artist should clear his thoughts of all precedents and study the subject as if he had never seen or heard of it before. Thus he can more easily discover the basic requirements and build up upon them. In his own work, Mr. Geddes has applied this principle to the design of motor cars, buses, railway rolling stock, aircraft and aerodromes, ships, houses, theatres, factories, restaurants, household utensils, and shop window display. He explains his method of working and gives illustrations and descriptions of his achievements. His clarity of artistic vision is reflected in his literary style and results in a book of great interest and provocation of thought. To those in any way concerned with design this book will be an inspiration.

Signalling Equipment.—The Westinghouse Brake & Saxby Signal Co. Ltd. has issued two new sections of its general catalogue. Sub-section A of the present section E deals with the all-electric interlocking frame, style L. A 225-lever frame of this type in use at Brighton, Southern Railway, and a 95-lever installation at Wembley Park, Metropolitan Railway, are illustrated. The sub-section comprises 29 pages of general information, constructional details (with all components shown diagrammatically), and particulars of maintenance equipment. The new section G of the catalogue lists illuminated signalling diagrams and signal-box indicators of various types. The illuminated diagrams have strip or spot lighting, some models being supplied with either system as required. The characteristics of each type are shown in illustrations of equipment actually in use. The range of indicators includes a leakage detection system designed to record breakdowns in insulation to earth by displaying a red light to the signalman. A green light is continuously illuminated when all is in order. Track circuit and signal and point indicators are also shown. The latter are of unit construction, permitting complete freedom as to the number of indications required. A needle type indicator adaptable for most of the usual indication purposes is a useful addition to the catalogue.

Annual Report 1934 of the British Standards Institution.—New specifications in course of preparation, work in hand for future specifications, and revisions of previous specifications, are indicated, the field covered embracing engineering, metallurgy, chemistry, building and timber grading.

Datos Estadisticos, 1933.—This is a booklet of 37 pages published by the Claims Department of the Northern Railway of Spain, giving complete statistical data in respect to claims made and settled for loss, damage, and other causes during the year 1933. It is interesting to note that in 1933 the amount paid out in settlement of claims represented 7·45 per mil on receipts, as compared with 33·32 per mil in 1919.

Nickel Steel Topics.—The International Nickel Co. Inc., of 67, Wall Street, New York, sends a copy of *Nickel Steel Topics* for October, 1933, in which appears an article on the 800 h.p. Westinghouse diesel-electric locomotive purchased last year by the Northampton and Bath Railroad. Nickel alloy steels play an important part in the construction of these engines, being used for crankshafts, camshafts, connecting rods, valve rockers, case-hardened valve parts, and special bolts. The same publication reprints an extract from the *Railway Mechanical Engineer* dealing with the economy of weight and the contribution to the counterbalancing problem which can be effected by the use of alloy steels in locomotives.

G.E.C. Electrical Progress.—The General Electric Co. Ltd. has published an illustrated booklet of general information regarding the firm's activities, which is being distributed to shareholders. A foreword summarises various important works carried out during the past year. Among these may be mentioned the completion of the electrical equipment for the *Acklam Cross*, the first British diesel-electric tug, and the provision of motor and control apparatus and lighting and heating equipment for new electric rolling stock on the Metropolitan Line of London Transport and the L.M.S.R. Two notable lighting installations are illustrated; that at Lewisham is the largest street illumination scheme with Osira electric discharge lamps yet completed. In addition to railway traction equipment, the G.E.C. have developed a system for trolleybuses which is being increasingly adopted at home and overseas. An important feature of these installations is that they cause no interference with wireless receivers. Representative items from the G.E.C. range of domestic electrical appliances are also shown in the booklet.

THE SCRAP HEAP

In Ontario two moose, tormented by flies, sought refuge by lying on the railway track, at a bend in the road. A Canadian National Railways train sweeping round the curve struck the sleeping moose and derailed the leading bogie of the locomotive. It took the train crew twenty minutes to rerail it, but they were rewarded with moose steaks for dinner next day.

* * *

JUST IRISH

Seen on the side of a railway coach at Bangor (Ulster):—

" ENGAGED GOLFERS ONLY "

* * *

SENDING COALS TO NEWCASTLE

From a reader: " I saw it stated somewhere that Leyland Motors Limited had despatched ten Tigers to Africa. Isn't this rather like sending coals to Newcastle? " Maybe; but the Leyland Tigers were fitted with oil engines and the native products are not.

* * *

A question in a general knowledge paper recently set boys who were competing for places in an East London secondary school was " What does L.P.T.B. stand for?" One answer which, while not earning the approval of the examiners, may be gratifying to Lord Ashfield and his colleagues, was " the London Popular Transport Board."

* * *

A van labelled " Fish " was detached from an express at a little station near Prague. Remembering that fish vans have to be kept in motion to keep the water in the tanks aerated to prevent the fish from dying, the station authorities had the van shunted to and fro for 24 hours. When the owners of the fish came to claim their property they thanked the stationmaster, but pointed out that all his work had been wasted. The fish were sardines packed in tins!

* * *

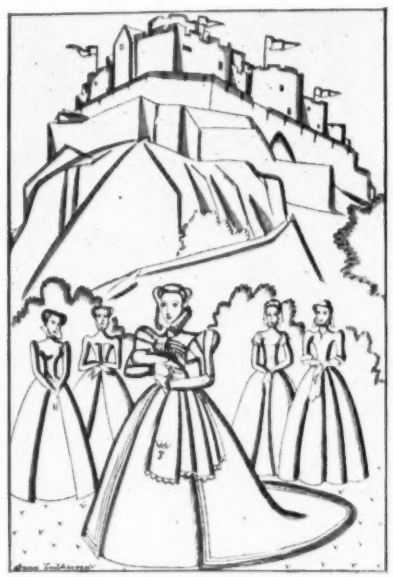
The novelty of an electric railway in Copenhagen resulted in surprising popular interest and enthusiasm at the inauguration of the electrified suburban system. But the system is now some months old, and yet the popularity survives. On a recent visit to Denmark it was noticeable, not only that groups still waited to " see the trains go by," but also that sober business travellers often abandoned their steam train at the outskirts of the electric system in order to complete their journey on the city's latest attraction.

* * *

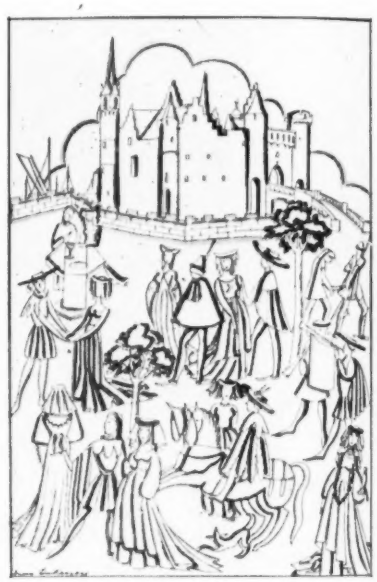
The rather curious fact that the majority of Brunel's wooden viaducts were designed on a curve was once remarked upon to Brunel by a friend, who asked the reason why. For answer, Brunel drew from his pocket a visiting card and tried to balance it on edge on the table before him. Naturally, the card refused to balance. Brunel then bent it into a slight curve so that it stood easily on its edge. The demonstrator gave no verbal explanation, leaving the admirable inference—that for such slender structures as his viaducts a curved design would take the strain better than a straight one—to speak for itself.—*From the " Derby Daily Telegraph."*

NEW L.N.E.R. MENU CARDS

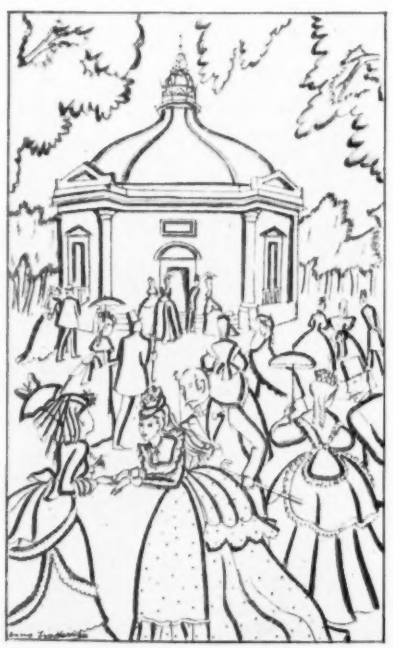
A set of four new menu cards, specially drawn for the L.N.E.R. by that gifted artist, Miss Anna K. Zinkeisen, will, there is good reason to believe, appeal to the artistic sense of those who use the restaurant cars and hotels throughout the company's system. As the accompanying reproductions show, the cards depict scenes, ancient and modern, at various historic and popular towns, and are quaintly conceived. Each picture is pleasingly tinted, which greatly adds to its attractiveness.



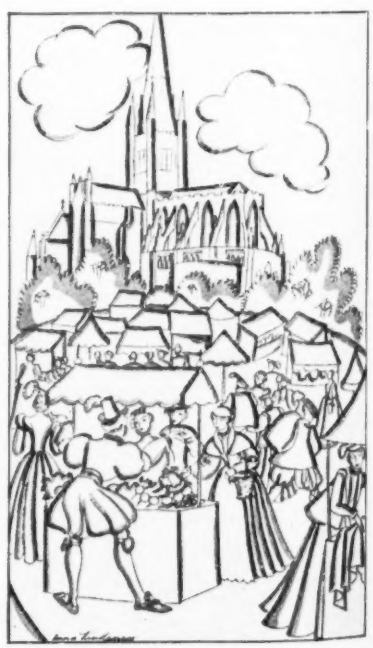
EDINBURGH CASTLE



THE STEEN, ANTWERP



PUMP ROOM, HARROGATE



NORWICH

OVERSEAS RAILWAY AFFAIRS

(*From our special correspondents*)

Proposed Argentine-Brazil road and rail bridge — Financial results of working Indian railways in 1933-34 —Improvements on the New Zealand Railways—Standard gauge agricultural railways in Egypt—Accelerated service in America

ARGENTINA

Proposed International Rail and Road Bridge between Argentina and Brazil

A scheme for the construction of an international rail and road bridge across the River Uruguay, to connect Argentina and Brazil, has been provisionally agreed upon by the Brazilian Minister of Foreign Affairs and the Argentine Ambassador, who affixed their joint signatures to the corresponding protocol in Rio de Janeiro on June 15 last. The scheme was discussed during the visit of the Argentine President to Brazil in October last, and the decision to carry it out was formally announced at the Seventh Pan-American Conference held in Montevideo in December by the Foreign Ministers of Argentina and Brazil. The protocol stipulates that a technical commission is to be appointed by each Government to study the scheme, and that the two commissions shall meet in Buenos Aires within 45 days of the signing of the protocol and report upon the suitability of the proposed site for the bridge, the topography of the land in the vicinity, the geological strata of the river bed, the strength of the currents, conditions during times of flood, &c., &c., taking into account also the fact that the bridge is intended to carry rail, road and pedestrian traffic, and is to be provided with accommodation for police and customs officials at both ends.

Wage Reduction Controversy

Argentine railwaymen are still pressing for a restoration of the " cuts " in salaries and wages which the companies found themselves compelled to make, as an offset, in some measure, to their financial difficulties, due to decreased receipts and losses on exchange. This question figured prominently on the agenda of the railwaymen's annual conference, which has just been held in Buenos Aires, at which a resolution was passed demanding an immediate return to the rates of pay previously ruling in all grades, on the ground that, as the receipts of most of the railways showed an improvement over those of last year, there was no justification for continuing the scale of *pro-rata* or short-time wage reductions. While it is true that most of the railways have lately been showing increased earnings, as compared with those of last year, it should be remembered that, for the majority of them, the financial period 1932-33 was about the worst in their history, so that whatever slight improvement has been recorded during the last six months, due to heavier grain movement, as the result of higher prices, is merely relative, and even this may not be maintained at its present level. Meetings to discuss the points at issue between the representatives of the railways and the unions have been held on a number of occasions at Government House, in the presence of the Minister of Public Works. These meetings were suspended during the sittings of the railwaymen's conference, but they will shortly be resumed, and it is to be hoped that an amicable agreement will be reached, and that the men's leaders will take a reasonable view of what is, for the companies, an extremely difficult situation.

First Meeting of Argentine Transport Committee

The first meeting of the committee appointed by the Argentine Government to study the condition of the transport industry and the financial position of the railways—referred to in THE RAILWAY GAZETTE of May 11 last—was held on June 23 under the chairmanship of the Minister of Public Works (Dr. Manuel R. Alvarado). The members present were Doctors Roberto M. Ortiz (additional member), Ramón Videla (representing the Railways), Adolfo Bioy (the Argentine Rural Society), and Juan B. Mignaquy (the Stock Exchange).

CHILE

Proposed Nationalisation of Chilean Electrical Industries

As has been noted from time to time in THE RAILWAY GAZETTE, during the past few years, the avowed aim of a succession of Chilean Governments has been the fostering and developing of the national resources and industries in such a way as to make the Republic more or less independent of foreign products, both as regards raw materials and manufactured articles. Coal, iron, steel and petroleum have, each in turn, been brought under the ægis of this policy of nationalisation, but the results so far achieved have not been particularly encouraging. It is now reported that a bill for the nationalisation of the country's electrical industries has been laid before Congress by a Deputy, this bill providing for the formation of a company—to be known as the " Empresa de Energia Electrica de Chile "—which would be responsible for the production and distribution of electrical power, with supervision over the private companies until such times as these have been replaced by a national concern. The capital has been fixed at 700,000,000 Chilean dollars (approximately equivalent, at current exchange rates, to £14,430,000), to be subscribed in the following proportions:—70 per cent. by the institutions of social service, 8 per cent. respectively by the State and the public, 5 per cent. respectively by the State Railways and the municipalities, 2 per cent. by the Central Bank and 2 per cent. by the National Savings Bank. All existing plants would be declared as of " public utility " as occasion demanded. It remains to be seen how far such a scheme will be acceptable to the Chilean people and the commercial community, who have already experienced some of the doubtful advantages of Government monopoly during the last year or two.

INDIA

Railway Results in 1933-34

The results of the working of Indian Railways during the year ending March 31, 1934, are summarised in a report recently issued by the Railway Board. The gross receipts, amounting to Rs. 86¾ crores, exceeded by Rs. 233 lakhs the figures for the previous year. The working expenses, including appropriation for depreciation, amounted to Rs. 62 crores, or Rs. 33 lakhs more than in the previous year. The increase is accounted for by the reduction in the cut in pay from 10 per cent. to 5 per cent. Making allowance for this factor, the working expenses were lower by Rs. 33 lakhs, although traffic increased.

The net receipts increased by Rs. 2 crores to Rs. 24¾ crores, but were insufficient to cover interest charges. A sum of Rs. 8 crores had, therefore, to be borrowed from the Depreciation Fund to meet the deficit, bringing the total of such loans to over Rs. 22 crores. Capital expenditure during the year on new construction and open line works was more than counterbalanced by a large reduction of stores balances and by writing down capital by debit to the Depreciation Fund on account of retired assets. In consequence, the total capital at charge was reduced from Rs. 797 crores to Rs. 795 crores.

The report reviews the results of the first decade of the separation of the Railway Budget from the general budget of the Government of India. Of the ten years, the first six were prosperous years and the next four the reverse. On the whole, the net result of the working of State-owned railways was a surplus of Rs. 20 crores and an

accumulated balance in the Depreciation Fund of Rs. 32 crores. Under the separation convention of 1924, the railways assumed a liability to make a contribution to the general revenues, which amounted on an average during the seven years in which it was paid to a net payment of Rs. 6 crores per annum. For the first five years this payment was made from current surpluses; in the sixth year, partly from the year's surplus and partly from the accumulated reserve; and in the seventh year wholly from the latter. In the last three years they were unable to make any contribution. Thus, out of a total of Rs. 42 crores paid to the general revenues, Rs. 22 crores were borrowed from the Depreciation Fund, leaving a sum of Rs. 10 crores, representing the actual reserve with railways at the end of the decade. This reserve consists of half-a-crore invested on behalf of the Railway Reserve Fund, and Rs. 9½ crores in the Depreciation Fund.

At the end of 1933-34, the liabilities of the railways to be met in subsequent years amounted to Rs. 38 crores, made up of Rs. 22 crores owing to the Depreciation Fund and Rs. 16 crores representing contributions due for the three years 1931-32 to 1933-34. The net traffic receipts of Rs. 24¾ crores in 1933-34 represent a return of 3·1 per cent. on the capital at charge.

NEW ZEALAND

Enhanced Locomotive Power and Rolling Stock Improvements

The Duke of Gloucester is expected to arrive in this Dominion in December. His visit thus comes in the midst of New Zealand's period of maximum summer traffic, and in anticipation of exceptionally heavy demands upon engine power and rolling stock in the months of December and January, the whole programme of building and repairing locomotives, cars and wagons has been arranged to ensure that the largest possible number of vehicles will be available for this summer's traffic. There are now 13 of the new and successful K type of express locomotive running, and additional engines are being turned out of the Hutt Valley workshops at the rate of one in every six weeks. These will go far to relieve the situation in December.*

Coincident with the provision of larger locomotives, there has been a programme of bridge strengthening and rolling stock improvements. Among improvements in passenger stock may be mentioned the renovation of internal fittings in the older types of car. In second class accommodation, longitudinal seats are being replaced by high-backed chairs, red leather upholstery has been introduced to improve the appearance, and linoleum is now fitted in all renovated cars. The workshops are also engaged in converting some of the older types of sleeping cars into composite day and night cars for the Stratford-Main Trunk service, with one end of the car equipped with chair seats for ordinary day travel, and the other fitted with sleeping compartments for those who require them. This type of car is designed with a view to reducing haulage costs.

* On page 230 we illustrate one of these fine locomotives hauling a Main Trunk express over a typical viaduct on this line, which connects Wellington with Auckland.—Ed., *R.G.*

EGYPT

Agricultural Railways

There are 1,110 miles of agricultural railways in Egypt, 875 miles of which are owned and worked by three companies—the Egyptian Delta Light Railways, the Chemins de Fer de la Basse Egypte, and the Fayoum Light Railways—and are all narrow gauge (2 ft. 6 in.) systems. The remaining 235 miles of the country's agricultural railways are unique in that they are on the standard 4 ft. 8½ in. gauge, and are owned and worked by the Egyptian State Railways. They are referred to as the Upper Egypt Auxiliary Railways. This latter system is in two separate sections; one, the southern section, extends for 40 miles along the Nile valley between Luxor and Esna, and the other, the northern section, 195 miles long, lies in the valley between Beni-Suef and Deirout.

These Government Auxiliary Railways, since their origin in or about 1870 under the then Khedive's Daira, and under the Daira Sugar Corporation, and, since 1902, under the State Railways, have contributed appreciably to the agricultural development of the Nile Valley. Although originally instituted purely for the transport of agricultural produce, the railways now carry every class of goods traffic and also run passenger trains.

Sixty-year Old Locomotives

The locomotive, carriage and wagon stock is of a very different class from that of the State Railways. It is generally very old, no replacements in any category having been made for about thirty years. It is because of the present aged condition of its locomotives that attention is now being more forcibly drawn to the system.

The present locomotive stock numbers 34 units, principally of the 2-4-0 type with a maximum axle load of about 11 tons. It speaks well for the quality of the material and the workmanship embodied in them, that 29 of those engines are 62 years old, having been built by John Fowler & Co. (Leeds) Ltd., and by Beyer Peacock & Co. Ltd., in 1872 and 1873. With the exception that ten of these 29 engines were fitted with new cylinders some years ago, they are all running to-day precisely as supplied over 60 years ago and with their original boilers. The remaining five engines, making the total of 34, were variously built and supplied by Andrew Barclay, Henschel, and Gouillet (Belgium) between 1899 and 1903. The photograph reproduced on page 230 shows one of the 1872 Fowler-built engines referred to.

The busiest time of the year for the engines is during five months of the sugar season, and they then work continuously for 16 to 18 hours a day, remaining in steam for the rest of the twenty-four hours, and receive running shed attention very infrequently.

Even the best built locomotive has a maximum useful life, and 62 years with very few renewals is exceptional, but, as might be expected, some of the engines have now reached the stage when they require new boilers, cylinders, and gear. As rebuilding would be expensive and uneconomical, the Egyptian Railway Board is being approached with a view to obtaining a grant for the purchase of fifteen new locomotives for this still useful auxiliary system.

UNITED STATES

Train Accelerations

Beginning on July 15 the Chicago, Milwaukee, St. Paul and Pacific RR. has accelerated certain trains between Chicago and Milwaukee by 15 minutes, thus reducing the time for the 85 miles to 90 minutes. This schedule is better than it looks because at both ends slow running is necessary for some distance in the outskirts of Chicago and Milwaukee.

P.W.A. Loans to Railroads

By means of loans amounting to nearly $2,000,000,000 to the railroads by the Public Works Administration, it is stated that 100,000 persons have been put back to work. New equipment under construction on account of the loans includes 22,395 freight cars, 323 passenger cars, and 179 locomotives, and rolling stock being repaired includes 1,552 locomotives, 34,961 freight cars, and 1,956 passenger cars. Other important items included are the completion of the Pennsylvania electrification between New York and Washington, and large quantities of new rails.

FRANCE

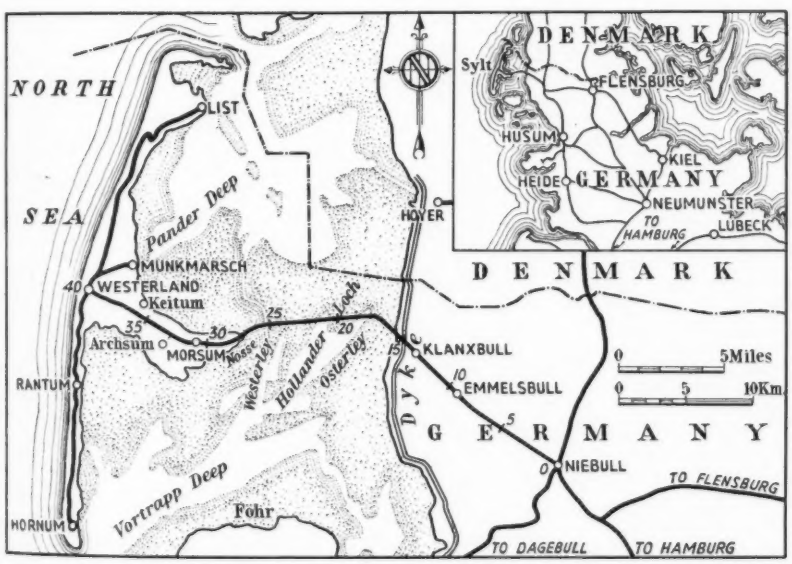
Electrification

In addition to the scheme referred to on page 138 in THE RAILWAY GAZETTE of July 27 and now in preparation for electrifying the main line of the State Railways between Paris and Le Mans, a scheme for the electrification of the Paris suburban lines of the Est is being considered. The total estimated cost of these two electrification schemes is 820,000,000 fr., and the work is expected to take about four years to complete.

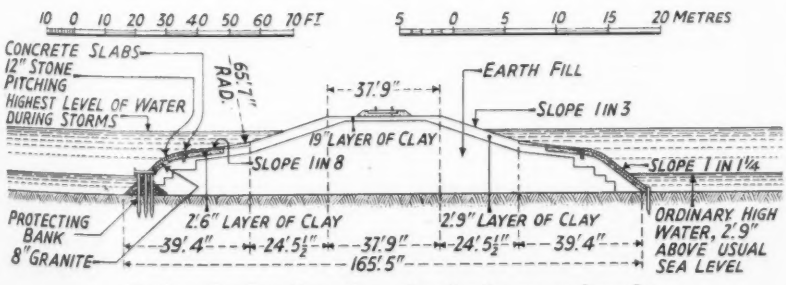
THE HINDENBURG DAM

The railway from Schleswig-Holstein to Sylt is carried on a dam through the Wattenmeer. The illustration alongside shows the isolated position of the line in the worst conditions of high tide and rough water

THE Island of Sylt is situated off the west coast of Schleswig-Holstein and is a favourite North German watering place, with a population of 6,000. Before the war the regular means of communication with the island was by means of a service of light-draught steamers between Hoyer and Münkmarsch, whence there was a light railway to Westerland, the principal town. The sea between the mainland Sylt, known as the Wattenmeer, is strewn with sandbanks and shallows, with a channel here and there. The approach to Hoyer is through an artificial channel, by means of which it was possible to maintain a boat service twice daily if the tide served. The steamers accommodated about 500 passengers and took two hours and a half to accomplish the journey. When the wind was in certain directions, tending to drive the water out of the Wattenmeer, it was apt to interfere with the service, which was often stopped altogether in winter by ice. This left the island inhabitants dependent on the weekly service of the Hamburg-Amerika line from Hamburg. In fine weather the journey from Hamburg to Westerland via Hoyer could be made in about 8 to 8½ hours. In winter 10 to 11½ hours were required. The dependence on the tide made frequent changes in the train times necessary, and very early departures from the island were sometimes unavoidable, with long waits for connecting trains. This was not only inconvenient for the public but for the railway management also, the working of the rolling stock and locomotives requiring constant alterations.



Sketch plan and key map showing position of dam



Section showing formation of embankment and track

The question of constructing a dam to carry a railway between Schleswig-Holstein and Sylt was raised before the war. In addition to improving communication it would enable fertile land to be reclaimed from the sea. The route had been chosen and plans prepared when the war put a stop to the work. After the war a new impetus was given to the project by the alteration made in the position of the Dano-German frontier. Germany lost Hoyer and Tondern, with the result that passengers to Sylt had to travel through Danish territory to reach the boat and were subjected to the inconvenience of passport and Customs formalities. After the possibility of making a new landing place

to enable a steamer service to be run from German territory had been investigated, the construction of the dam was decided on. In 1921 a new railway was built from Niebüll, on the old main line, to the sea dyke near Rodenäs, and was opened to the public as far as Klanxbüll in the winter of 1922-23.

The construction of the dam itself was begun in the spring of 1923 and the train service over it commenced on June 1, 1927. It is protected at its base on the south side, where the effects of rough weather are mostly experienced, by a special protecting wall. The main foundation was laid by discharging the materials through a pipe line, and the upper part in the usual way with ballast trains. The dam is 11 kilometres long and its cost amounted to 18½ million marks, exclusive of the approach lines and associated works.

Journey times have been much shortened by the new railway. From Niebüll to Westerland now takes only an hour instead of 4 to 5 hours. From Hamburg the time is 5 hours by the express or 8 by the ordinary trains. A considerable reduction in fares has also been made, so that the popularity of Sylt as a holiday resort should be much increased.

POPULARITY OF WEST COUNTRY RAILWAY AIR SERVICES.—We understand from the G.W.R. that both the Liverpool-Plymouth and the Birmingham-Cowes railway air services are proving most popular with the travelling public. During last week-end the former service was unable to cope with all the holiday traffic, and many who wished to travel by air had to be disappointed.

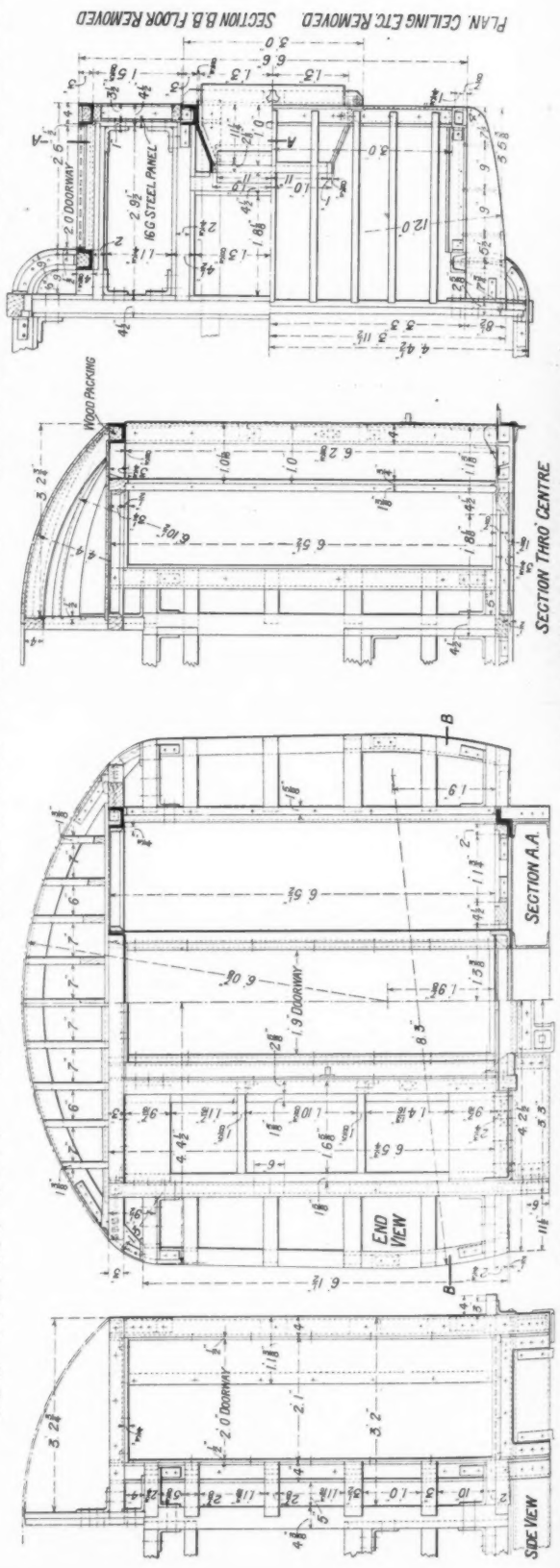
The Birmingham-Cowes service, the inauguration of which was described in last week's issue of THE RAILWAY GAZETTE, effects a saving of four hours in the journey time between Birmingham and the Isle of Wight. The quickest time by express train and boat is 5 hr. 55 min.—more than three times that taken by the plane. An even greater saving of 7 hr. 5 min. is given Railway Air Service passengers from Liverpool, who connect with the new service at Birmingham, while, from Bristol, the journey time is reduced from 3 hr. 53 min. to 50 min. Connecting air services are also provided by Norman Edgar Western Airways to and from Cardiff at Bristol, to Southampton and the Isle of Wight, and also from Birmingham at Bristol to and from Bournemouth. A morning and afternoon service is given in each direction on week-days.

Birmingham, Castle Bromwich aerodrome	.. ..	dep.	9.35 a.m., 2.15 p.m.
Bristol, Whitchurch aerodrome	.. .. ..	arr.	10.30 a.m., 3.10 p.m.
Bristol, Whitchurch aerodrome	.. .. ..	dep.	10.35 a.m., 3.15 p.m.
Southampton airport	.. ..	arr.	11.15 a.m., 3.55 p.m.
Southampton airport	.. ..	dep.	11.20 a.m., 4.00 p.m.
Cowes, Somerton aerodrome ..	.. .. ..	arr.	11.30 a.m., 4.10 p.m.
Cowes, Somerton aerodrome ..	.. .. ..	dep.	12.05 p.m., 5.00 p.m.
Southampton airport	.. ..	arr.	12.15 p.m., 5.10 p.m.
Southampton airport	.. ..	dep.	12.20 p.m., 5.15 p.m.
Bristol, Whitchurch aerodrome ..	.. ..	arr.	1.00 p.m., 5.55 p.m.
Bristol, Whitchurch aerodrome	.. .. ..	dep.	1.05 p.m., 6.00 p.m.
Birmingham, Castle Bromwich aerodrome	.. ..	arr.	2.00 p.m., 6.55 p.m.

In all cases the aerodromes are connected with the Southern and G.W.R. stations by road motor services which, at Southampton, are extended to, or run from, any berth in the docks if desired.

The fares are:—

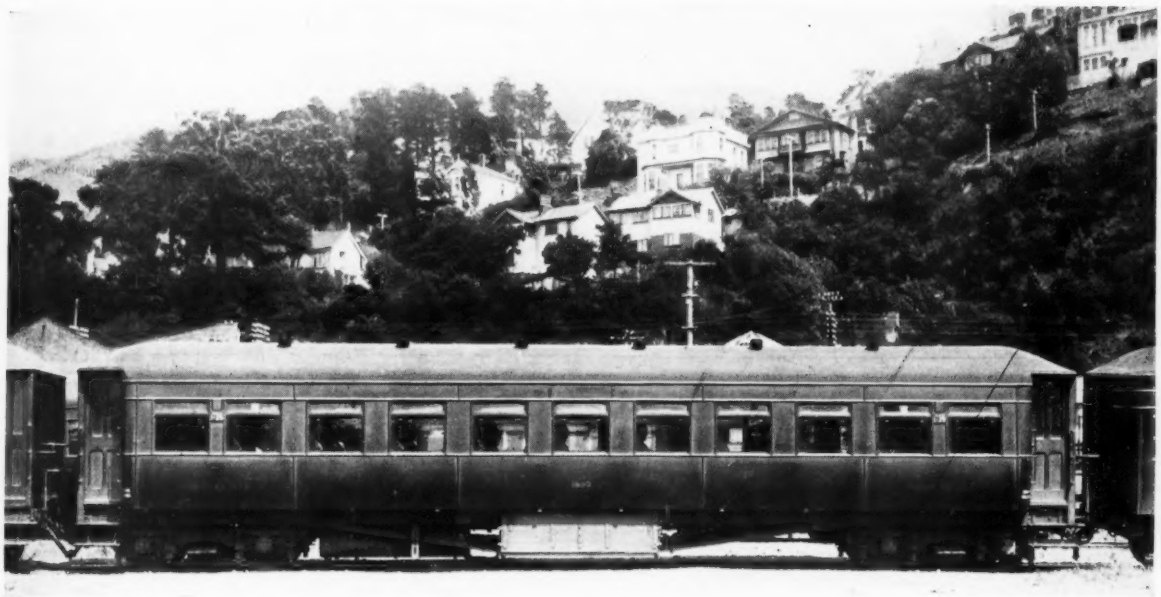
	Bristol		Southampton		Cowes	
	Single	Return	Single	Return	Single	Return
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Between:—						
Birmingham ..	25 0	45 0	35 0	65 0	40 0	22 6
Bristol	—	—	22 6	37 6	27 6	45 0
Southampton ..	—	—	—	—	5 0	10 0



Details of anti-collision ends of Main Trunk express day and sleeping car stock (see facing page)

MODERN NEW ZEALAND PASSENGER STOCK

First and second class day cars and sleeping cars designed for use on the Main Trunk line have steel anti-collision ends, roller bearing bogies and a special type of seat

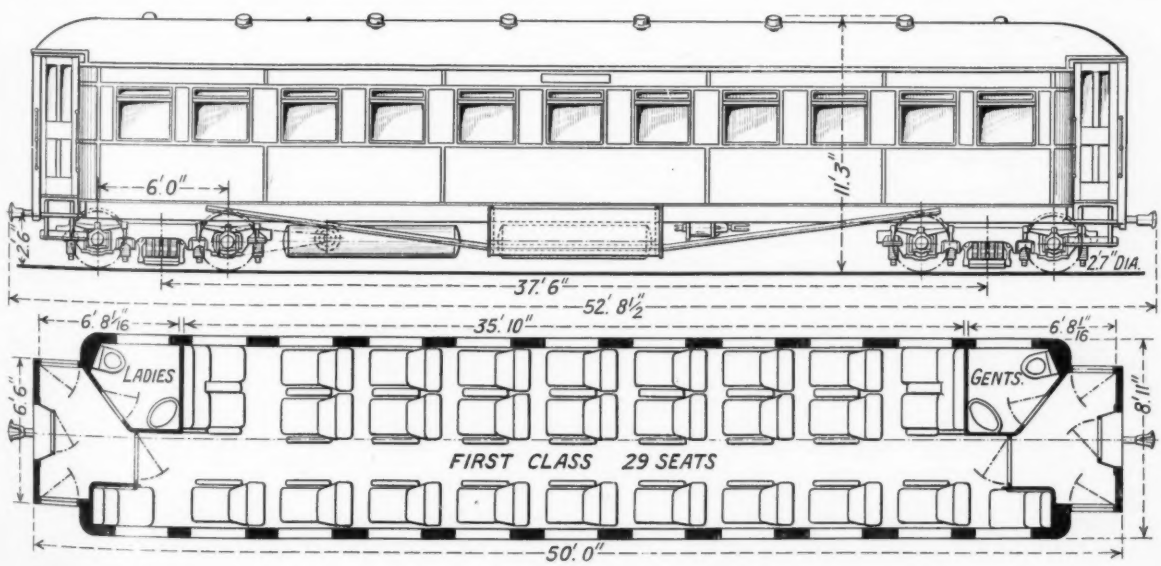


First-class 50-ft. Main Trunk express day car

THE New Zealand Government Railways are now turning out two new series of coaches for main trunk service, (*a*) of the express day car type and (*b*) sleeping cars. There are several points in common between these types, both being fitted with anti-collision steel ends, S.K.F. roller-bearing bogies, and being 50 ft. in length. In each case the outside appearance and finish are similar, 16-gauge steel exterior body panels being used. The interiors also are stained a light mahogany shade in each instance.

First and Second Class Day Cars

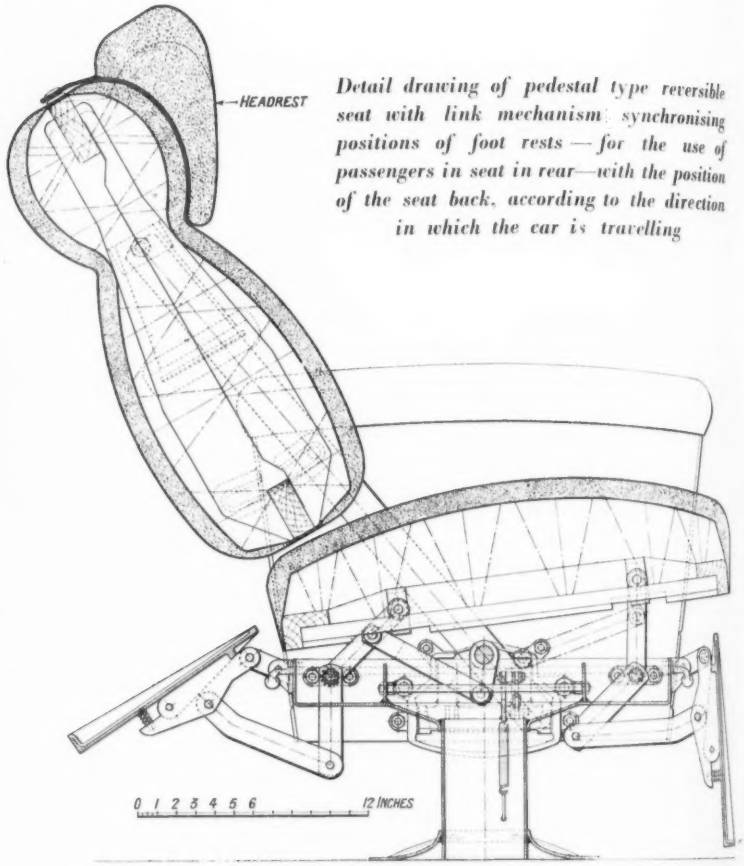
Some of the day cars are first and others second class. The former have six fixed end chairs and 23 special



Diagrams of side elevation and seating plan of first class express day car with reversible seats

Details of anti-collision ends of Main Trunk express day and sleeping car stock (see facing page)

Above: Reversible chair seating, first class day car. The foot rests seen are folded up out of use



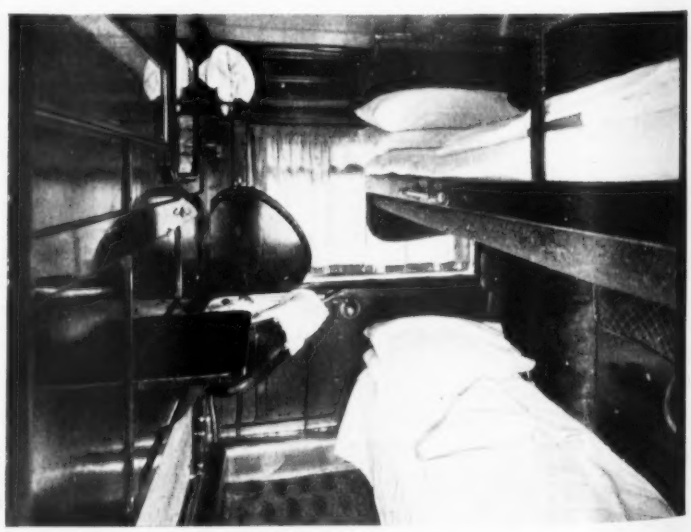
Detail drawing of pedestal type reversible seat with link mechanism synchronising positions of foot rests — for the use of passengers in seat in rear—with the position of the seat back, according to the direction in which the car is travelling

reversible chairs with head and foot rests, as illustrated above. The second class cars have six fixed end, and 38 turnover chairs with foot rests. All chairs are covered with red leather upholstery. Electric lighting (Stone's system) is fitted throughout, and each car has two lavatories. For these, water is stored in tanks below the underframes, and is raised by the Westinghouse compressed air water raising system. Macinlop's rubber flooring is used in the lavatories, and the walls are covered with Plymax wall board up to the window sill level and with Sundela above that height.

Laycock's balanced drop windows and Robertson's patent ventilators supply the necessary light and air, and all these cars are fitted with Westinghouse brake and Janney Yoke drawgear. The steel anti-collision ends are illustrated on page 222.

The Sleeping Cars

Each sleeping car contains eight two-berth compartments, and each berth is fitted with both spring and Hairlok rubberised horsehair mattresses. Compartment fittings include hot and cold water wash basin, mirror, steam-heater, electric fan and general and individual bunk night lights. Ample ventilation is a speciality. The corridor is rubber floored and the compartments have carpet runners. The top bunk when let down forms the back of the seat for the day position, and the whole of the upholstery is in moquette of a neat design. From the rolling stock programme which we published on page 188 in our issue of August 3, it appears that all this new stock, with the exception of 12 of the second class day cars, is now in service. The New Zealand Government Railways are therefore well equipped with up to date and comfortable coaching stock for the principal main line services.



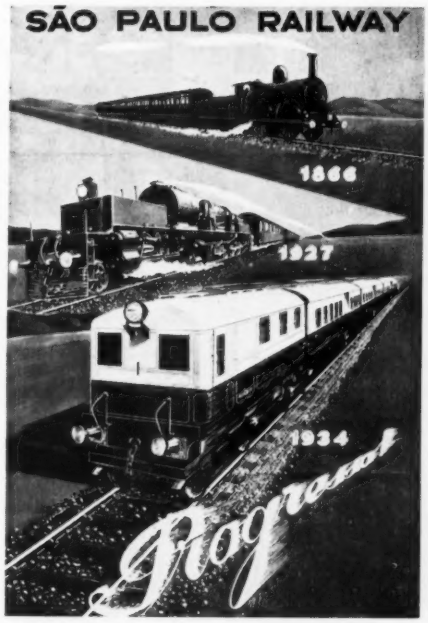
Two-berth first class sleeping compartment Main Trunk stock

SÃO PAULO RAILWAY PROGRESS

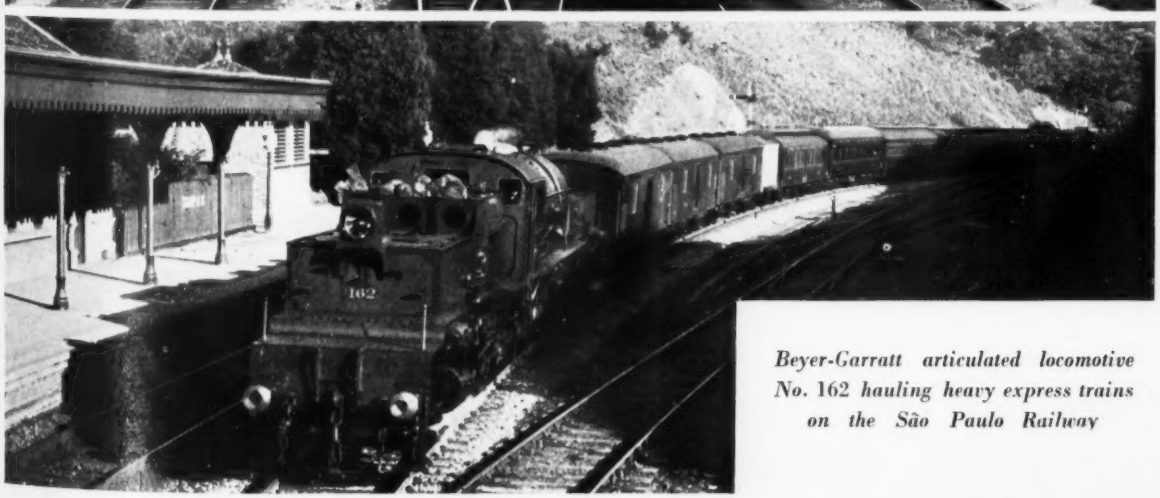
THAT the São Paulo Railway of Brazil is essentially an up-to-date line will be obvious from the poster opposite, but to emphasise this fact we illustrate below one of the six 4-6-2+2-6-4 Beyer-Garratt locomotives at work on trains, and on pages 256-8 in the *Diesel Supplement* which accompanies this issue is described the diesel-electric trains now in service. Moreover, on page 226 below, will be found details of the latest wagon stock built by the Metropolitan-Cammell Carriage, Wagon & Finance Co. Ltd. and recently shipped to Brazil.

The Beyer-Garratt locomotives work the principal expresses between São Paulo and Jundiahy, the intervening 40 miles being booked to be covered in 60 min., in spite of the fact that the maximum speed permitted is 43 m.p.h., that loads average 500 tons, and that ruling grades are as steep as 1 in 40 and sharp curves have to be negotiated. These engines have a tractive effort of 50,000 lb. and 5 ft. 6 in. coupled wheels.

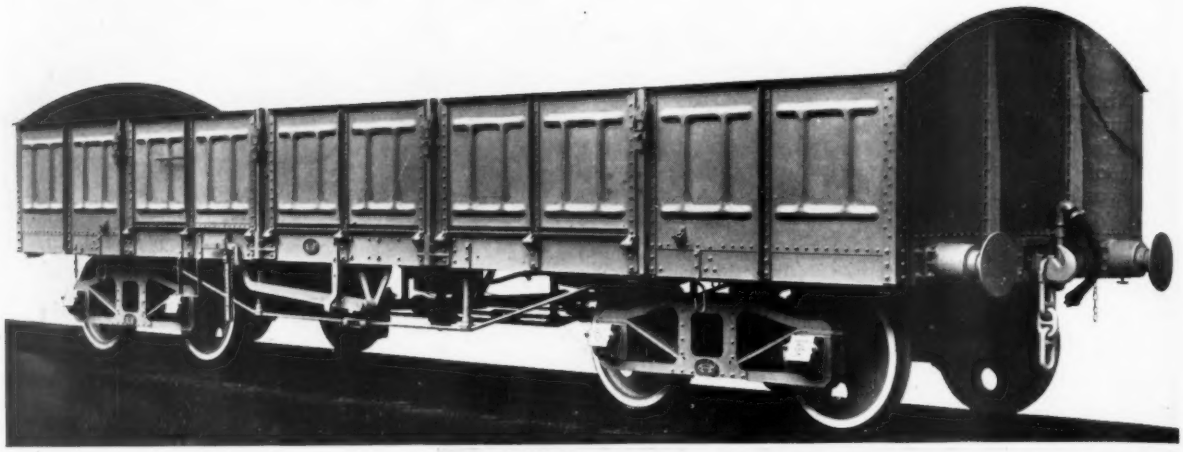
The new Metropolitan-Cammell built stock consists of 100 30-ton open bogie wagons designed in São Paulo by the Chief Mechanical Engineer, Mr. P. C. Ford, and constructed to the instructions of the Consulting Engineers,

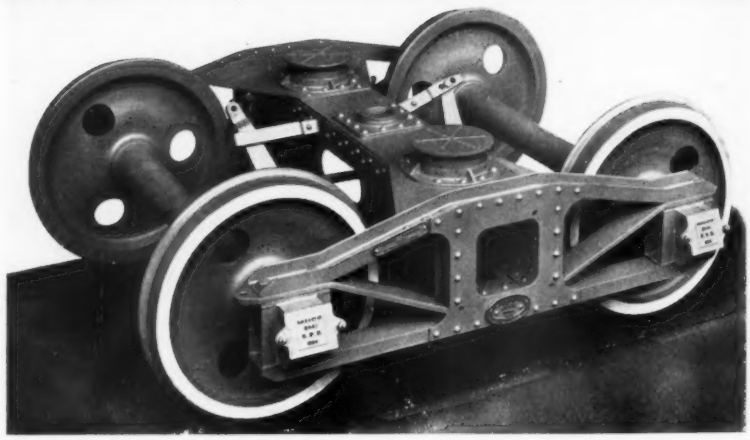


Right: A striking poster recently issued by the São Paulo Railway and showing a modern Garratt locomotive and diesel - electric train in contrast with an early 0-4-2



Beyer-Garratt articulated locomotive No. 162 *hauling heavy express trains on the São Paulo Railway*





Above: Completed bogie wagon fitted with (right) Sheffield-Twinberrow bogies and Framwel welded axleboxes

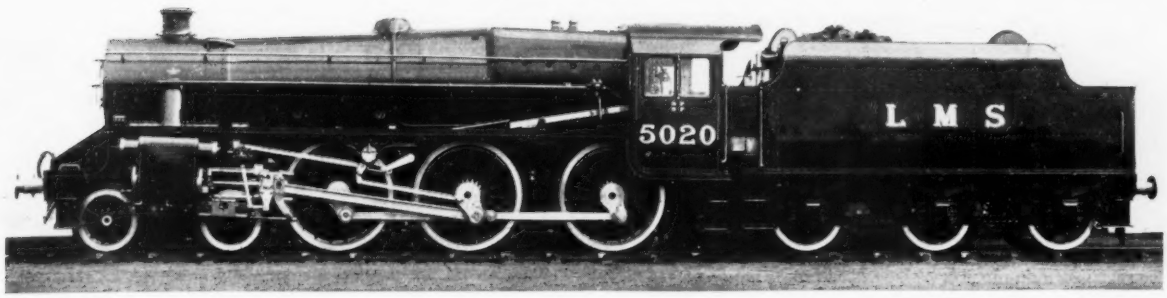
Messrs. Fox & Mayo. The question of weight was of great importance and the specification called for the tare not to exceed 17 tons. Careful design has achieved an actual tare weight of about 16 tons. The bogies are of the well known Sheffield-Twinberrow type, which are extensively used on this railway, and are fitted with Framwel welded axleboxes as described and illustrated in THE RAILWAY GAZETTE of February 9 last. The underframe is constructed of rolled steel sections securely kneed together with tubular diagonal struts behind the side buffers.

A special form of central drawgear is fitted using Spencer Moulton's rubber springs. This drawgear has been so designed that it is possible to replace the existing drawhooks and side buffers with automatic couplers at some future date. Both solebars and longitudinals are trussed, the truss pillars being tubular. The sides, which are of pressed steel, have three drop doors with removable stanchions on each side, while the ends are built up of sections and plates. Two 18-in. vacuum cylinders and a hand brake are fitted to act on four blocks on each bogie.

Two views of a new signal box on the German State Railway, typical of the style of construction now being adopted. (See editorial notes on page 213)

NEW 4-6-0 TYPE MIXED TRAFFIC LOCOMOTIVES, L.M.S.R.

Twenty of these engines are to be built at the company's works at Crewe and fifty by the Vulcan Foundry Limited



THE 1934 locomotive building programme of the London Midland & Scottish Railway includes seventy 2-cylinder 4-6-0 type superheater mixed traffic engines, and 20 of these, *i.e.*, Nos. 5000 to 5019, are to be built at the company's works at Crewe, and 50, *i.e.*, Nos. 5020 to 5069, by the Vulcan Foundry Limited at Newton-le-Willows, Lancs. The engines have been designed to meet requirements of a general utility description, and the photograph reproduced shows No. 5020, the first of the Vulcan series to be completed.

The boiler is fitted with superheating apparatus, Belpaire type firebox and tapered barrel. It carries a working pressure of 225 lb. per sq. in., and with a view to reducing weight nickel steel plate has been used. The main regulator is incorporated in the superheater header in the smokebox, and the feed water is supplied through top feed valves provided on the second boiler barrel ring with water distributing trays. A Davies & Metcalfe exhaust injector is fitted on the right hand and a Gresham & Craven live steam injector on the left hand side of the firebox.

The two cylinders are placed outside the frames and drive the middle pair of coupled wheels. Walschaerts valve motion and piston valves are utilised for steam distribution purposes, the valve travel being 6½ in. The coupling and connecting rods and motion parts are of high tensile, manganese-molybdenum steel, and the wheel centres are steel castings with triangular section rims and retaining rings of the Gibson type for fixing the tyres. The four-wheeled bogie is of the standard L.M.S. type, in which the weight is taken through side bolsters, bogie side check spring gear being provided to ensure smooth riding.

The cab is of commodious pattern with sliding windows on both sides, and in addition small hinged windows acting as draught preventers for the enginemen when looking out. A steam brake is provided on each of the coupled wheels, operated by the driver's vacuum brake valve.

The sanding apparatus is of the mechanical trickle type, with water de-sanding apparatus arranged to come automatically into action, the rails being cleaned with hot water to prevent interference with track circuits.

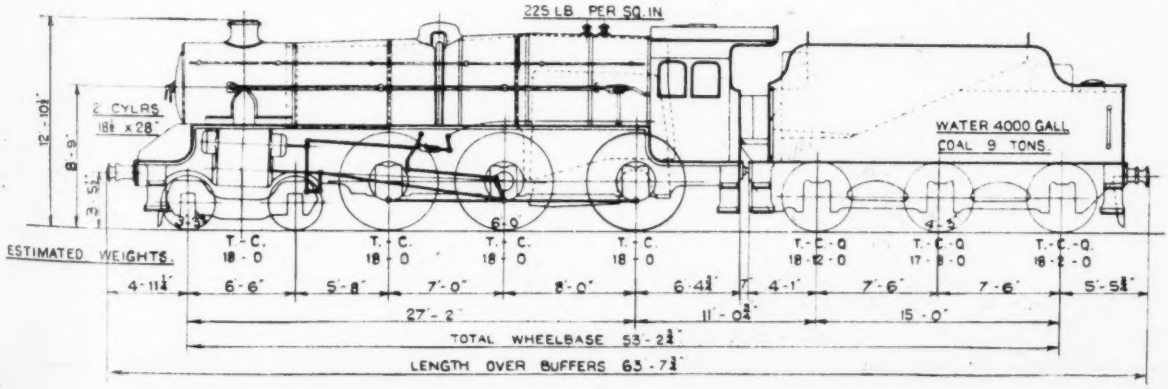
The following are the main particulars:—

Cylinders (2) diam.	18½ in.
Piston stroke	28 in.
Wheels, coupled, diam.	6 ft. 0 in.
Boiler, heating surfaces—	
Firebox	156 sq. ft.
Tubes	1,460 ,,
Total	1,616 ,,
Superheater	227·5 ,,
Combined total	1,843·5 ,,
Grate area	27·8 sq. ft.
Boiler pressure	225 lb. per sq. in.
Weight of engine and tender in working order	114 tons 14 cwt.

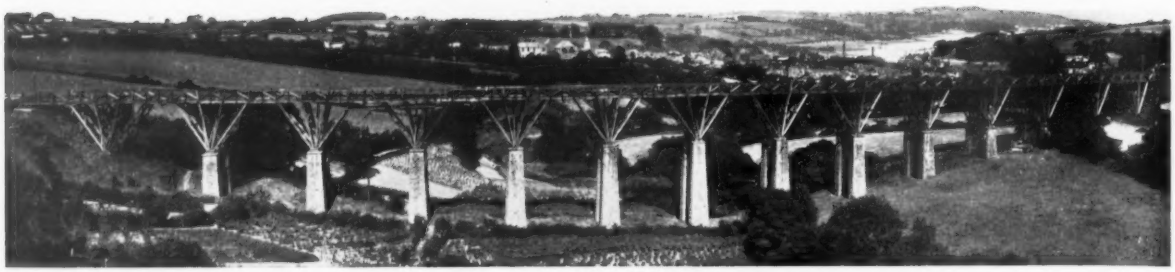
The engine develops a tractive effort at 85 per cent. h.p. of 25·455 lb.

The tender is of the six-wheeled type and of enlarged capacity. It is fitted with water pick-up apparatus and carries 4,000 gallons of water and 9 tons of coal.

The illustrations have been prepared from originals kindly supplied by Mr. W. A. Stanier, Chief Mechanical Engineer, L.M.S. Railway, to whom we are also indebted for the information incorporated above.



Replacing Brunel's Last Timber Viaduct, G.W.R.



Above: The old Collegewood viaduct, 974 ft. in length, the last of the timber viaducts in the west of England to be replaced by a masonry structure. As already recorded, it was used for the last time on Saturday, July 21

Right: The new Collegewood viaduct between Penryn and Falmouth stations, G.W.R., built alongside Brunel's timber structure which can be seen through the nearest arch. The contract for the work was entrusted by the Great Western Railway to Mr. A. E. Farr, Victoria Street, London, S.W., and the work was supervised by Mr. E. S. MacDonald, Resident Engineer, on behalf of the company's Chief Engineer, in whose office the drawings were prepared

Below: General view of the new Collegewood viaduct which conforms generally to the type of viaduct in Devon and Cornwall adopted in replacement of the timber structures. The new viaduct, which carries a single line, is about 920 ft. in length, and consists of masonry piers and brick arches with reinforced concrete parapets. It has 11 arches of 68 ft. span, and the height from ground to rail level is 100 ft.

RAILWAY NEWS SECTION

PERSONAL

Major M. J. M. Dewar, O.B.E., who, as announced last week, has been appointed Publicity Officer, G.W.R., joined the company's service in October, 1933, as Trade Advertising Agent. Prior to this he was, for seven years, in charge of the outdoor publicity of the Empire Marketing Board which he joined on its inception. In 1924-25 he was on the headquarters staff of the British Empire Exhibition at Wembley. Major Dewar served with his regiment, the Royal Sussex, in France from 1914 to 1916 when he was seriously wounded. He was on the General Staff at the War Office from 1917 to 1921 and was then invalided from the service.

Major M. J. M. Dewar, O.B.E.,
Appointed Publicity Officer, Great Western Railway

Mr. C. E. W. Duley, M.Inst.T., who, as announced in our issue of July 20, has been transferred by the directors of the Central Argentine Railway to the headquarters staff of the railway in London, as Assistant to the Secretary, sailed for England on July 11, preparatory to taking up his new appointment on September 1. Mr. Duley entered the service of the Central Argentine Railway in April, 1909, and, after some three years on the General Manager's staff, became Principal Assistant to the Chief of the Statistics Department. In 1914, Mr. Duley visited the U.S.A. for the purpose of studying North American railway operating methods and, in November, 1917, in consequence of the decision to introduce a traffic control system on the Central Argentine Railway, he was detailed for special duties under the direction of the Traffic Manager and the Chief Mechanical Engineer. In June, 1920, Mr. Duley was appointed Chief of the Statistics Department, and on July 1, 1923, became Indoor Assistant to the General Manager (then Mr. W. Howard-Williams, C.B.E.), continuing to occupy that position under the present General Manager, Mr. Ronald Leslie, until July 1, 1930, when he was appointed Assistant to the General Manager, with the grade of a chief officer of the company. Mr. Duley is a Member of the Institute of Transport, and at the time of his departure from Argentine, was a Vice-President of the Argentine and River Plate Centre.

Mr. C. E. W. Duley, M.Inst.T.,
Appointed Assistant to the Secretary, Central Argentine Railway

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Mr. Arthur Silvester Matthews who, as announced in THE RAILWAY GAZETTE of July 27, has been appointed Assistant to the General Manager, Central Argentine Railway, was educated at Cheam School, Eton, and Magdalene College, Cambridge, where he took an honours degree in mathematics. He received a temporary commission in the 13th Reserve Cavalry Regiment in August, 1914, and served in France with the 8th (King's Royal Irish) Hussars from May, 1916, to February, 1919. Mr. Matthews was called to the Bar in May, 1919, and would have been called earlier but for the outbreak of war. He unsuccessfully contested the Doncaster Division of the West Riding of Yorkshire in 1924 in the Conservative interest, and in February-September, 1927, he carried out a special mission to Colombia, Peru and Ecuador. In 1928 Mr. Matthews was appointed Assistant Secretary to the Central Argentine Railway Company, the post he now vacates to take up his new duties as Assistant to the General Manager in Argentina.

Mr. A. S. Matthews,
Appointed Assistant to the General Manager, Central Argentine Railway

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Mr. H. G. Sayers, Dock Superintendent, Tyne Dock, L.N.E.R., has been appointed Dock Superintendent, Eastern Docks, Hull, in succession to Mr. H. S. Cole, who, as recorded on page 117 of our July 20 issue, has been appointed Chief of Police, North Eastern and Scottish Areas.

SOUTH AMERICAN RAILWAY STAFF CHANGES

Mr. Peter B. Wilson, Assistant Accountant of the Central of Peru Railway, has been appointed Chief Accountant of the Southern Railway of Peru, with headquarters at Arequipa.

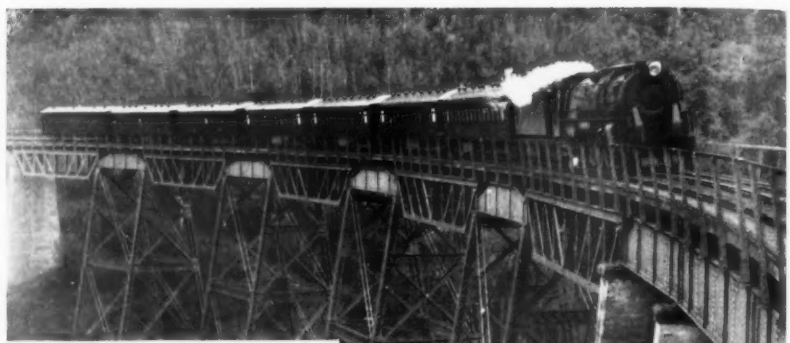
Mr. John H. Taylor, M.Inst.C.E., Assistant Engineer (Indoor), Central Argentine Railway, sailed for England on leave on July 12.

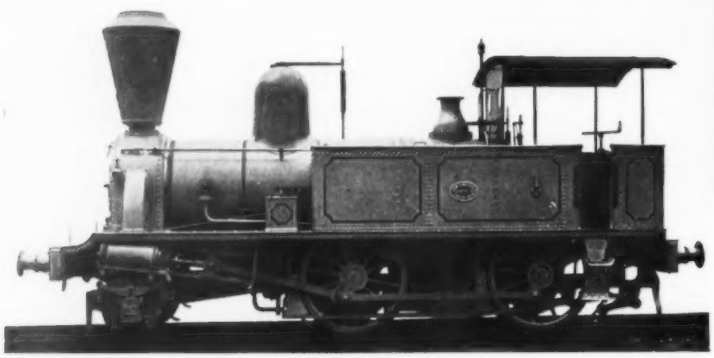
Guest, Keen & Nettlefolds Limited has appointed Mr. James Hornby Jolly to be Managing Director and Mr. E. C. Drake to be Secretary.

Mr. Charles Bruce Gardner has been elected a Director of the Armstrong Whitworth Securities Company and Sir

Below: One of the 2-4-0 tank locomotives built in 1872 by Fowler & Co. for the Agricultural Railways of Egypt referred to on p. 220. The principal dimensions are:—

Cylinders	12 in. by 18 in.
Coupled wheels diam. ..	4 ft. 1 in.
Heating surface:	
Tubes	428 sq. ft.
Firebox	51 sq. ft.
Total	479 sq. ft.
Grate area	10 sq. ft.
Boiler pressure	120 lb. per sq. in.
Tractive effort at 85 per cent. boiler pressure ..	4,760 lb.
Coal capacity	900 kilos.
Water capacity	450 gal.





Above: New Zealand Government Railways "K" class locomotive at the head of the Daylight Limited express, crossing one of the large viaducts on the North Island Main Trunk line. ***(See also notes on page 220)***

[*Express Photographs*

The 1934 staff of the Northern Belle cruising train, L.N.E.R., in front of an N.B. Atlantic

W. G. Armstrong Whitworth & Co. (Engineers) Ltd.

Abdel Rahman Hamada Bey, M.Sc., has been appointed to act as Chief Mechanical Engineer, Egyptian State Railways, as from July 16, consequent upon the retirement of Mr. W. D. Knight, recorded in our issue of April 13.

As the matter closely concerns Railway Air Services Limited, we note that the Postmaster-General has appointed Rear-Admiral Sir Murray Sueter, M.P., and Major-General Sir Frederick Sykes to the Post Office Advisory Council to act as members of the Air Mail Panel of the Council. He has also appointed Group Captain W. H. Primrose, D.F.C., Royal Air Force (Retired), to be Air Mail Adviser to the Post Office.

Mr. H. M. Gibson has been appointed to succeed Mr. F. A. Eyre, when he relinquishes his appointment as General Manager, Manchester Ship Canal, on October 1 next, for considerations of health. Mr. L. Roberts, Director and General Manager of Frederick Leyland & Co. Ltd., has been appointed Deputy Manager of the Ship Canal, with a view to becoming General Manager in the near future.

L.M.S.R. Staff Changes

The following appointments have been approved by the directors:—

Chief Commercial and Chief Operating Managers' Departments

Mr. H. Viner, Goods Agent, Oldham Road & Beswick, to be Goods Agent, Broad Street.

Mr. R. Williams, Goods Agent, Oldham, to be Goods Agent, Oldham Road & Beswick.

Mr. J. Birtwistle, Goods Agent, Hollinwood, to be Goods Agent, Oldham.

Mr. F. W. Andrews, Stationmaster & Goods Agent, Greenore, to be Livestock Agent, Stanley (Cattle).

Chief Operating Manager's Department

Mr. M. Hewitt, Goods Agent, Broad Street, to be Cartage Assistant, D.G.M.O., Broad Street.

Mr. H. Capstick, Relief District Controller, Office of Divisional Superintendent of Operation, Derby, to be District Controller, Kentish Town.

Mr. E. Pilgrim, District Controller, Westhouses, to be District Controller, Staveley (Barrow Hill).

Mr. W. H. Bullimore, Assistant District Controller, Leeds, to be District Controller, Westhouses.

Mr. F. W. Abraham, Assistant to Superintendent of Motive Power, Euston, to be Assistant Divisional Superintendent of Operation, Manchester.

Mr. R. F. Harvey, Assistant Divisional Superintendent of Motive Power, Manchester, to be Assistant to Superintendent of Motive Power, Euston.

Mr. J. E. Wood, District Locomotive Superintendent's Assistant, Blackpool, to be Assistant to Divisional Superintendent of Operation (Motive Power), Manchester.

Mr. I. C. Forsyth, Running Foreman, Preston, to be District Locomotive Superintendent's Assistant, Blackpool.

Mr. W. Davies, Divisional Controller (Freight Services), Manchester, to be Assistant Divisional Superintendent of Operation (Traffic), Manchester.

Mr. E. Townley, District Controller, Huddersfield, to be Divisional Controller (Freight Services), Manchester.

Mr. F. H. Fisher, District Controller, Chester, to be Divisional Controller (Passenger Services), Crewe.

Mr. C. J. Vidal, Head of Section (Passenger Revenue), Chief Commercial Manager's Office, Euston, to be District Controller, Chester.

Scottish Change

Mr. R. Harvie, Chief Rates Clerk, Commercial Manager's Office, Glasgow, to be Rates Assistant, Commercial Manager's Office, Glasgow.

Indian Railway Staff Changes

Mr. T. Stephenson, District Transportation Superintendent (Traffic), M. & S.M.R., has been appointed to act as Deputy Agent (Establishment) in place of Mr. G. Charlton, as from July 7.

Mr. H. P. Burman has been appointed to officiate as Deputy Chief Mechanical Engineer (Electrical), E.B.R., as from April 1.

Mr. W. H. Liley, Signal and Interlocking Engineer, G.I.P.R., has been granted 5½ months' leave as from May 28.

Mr. A. Richardson, Chief Mechanical Engineer, G.I.P.R., has been granted 8 months' leave as from June 2.

Lt.-Col. C. F. Carson, M.C., R.E., Officiating Deputy Agent (Organisation), N.W.R., has been granted leave for 9 months as from June 10.

Rai Bahadur P. L. Dhawan, has been promoted substantively to the rank of Deputy Chief Engineer, State Railways, as from January 22. He will continue to officiate as Divisional Superintendent (Senior) on the N.W.R.

Mr. H. A. Joscelyne has been promoted substantively to the rank of Deputy Chief Engineer, State Railways, as from May 24.

Mr. J. C. Highet, F.C.H., Agent, North-Western Railway, has been granted four months' leave as from June 9.

Mr. R. Hatt Cook has been appointed to officiate as Senior Government Inspector of Railways, Circle No. 7, as from May 27.

Mr. G. Thomson, Deputy Chief Mechanical Engineer (Running), E.B.R., has been appointed to officiate as Chief Mechanical Engineer on that railway as from May 25. Mr. C. A. K. Bradley, officiates as Deputy Chief Mechanical Engineer in his place.

The Hon. H. T. de B. Bingham, Officiating Deputy Chief Engineer, N.W.R., has been appointed to officiate as Senior Government Inspector of Railways, Circle No. 4, as from June 7, *vice* Mr. F. R. Morgan.

Mr. H. P. Renwick has been appointed to officiate as Deputy Transportation Superintendent (Power), G.I.P.R., as from October 9, 1933.

Mr. N. D. Calder, Officiating Director, Railway Board, has been granted leave for four months as from June 28.

Mr. Frank D'Souza, Deputy Director, Railway Board, on return from deputation from the Indian Railway Conference Association, has been appointed to officiate as Director, Railway Board, as from June 28.

Mr. H. E. Cox, Signal Engineer, G.I.P.R., has been appointed to officiate as Signal and Interlocking Engineer on that railway as from May 28.

Messrs. H. D. Furley, F. R. Hawkes, O.B.E., and C. C. T. Brereton, M.B.E., have been confirmed as Divisional Superintendents, N.W.R., as from October 7 and 16 last.

Mr. L. W. Van Someren has been appointed to officiate as Traffic Manager, E.B.R., as from April 13.

Mr. H. W. Meakins has been appointed to officiate as Deputy Traffic Manager, Commercial, E.B.R., as from April 13.

Mr. J. Mackinnon, Officiating Deputy Agent, N.W.R., has been confirmed in that appointment with effect from February 25 last.

Mr. B. L. Cameron, Officiating Deputy Agent, Personnel, North Western Railway, has been confirmed in that appointment with effect from January 2.

Mr. E. L. Manico has been appointed to officiate as Deputy Chief Operating Superintendent, N.W.R., as from June 1.

Mr. R. H. Irani, Senior Government Inspector of Railways, Circle No. 5, has been granted leave for 21½ months, preparatory to retirement, as from July 12.

Mr. A. F. Harvey, Officiating Director, Railway Board, has been confirmed in that appointement with effect from November 16, 1932, and has been granted 2½ months' leave as from July 6, 1934. Lieut.-Colonel H. L. Woodhouse, M.C., R.E., has been appointed to officiate in his place.

Lung-hai Railway (North China) New Construction Works. — Mr. Chien Tsung-tse, Chinese Administrative Vice-Minister of Railways and Managing Director of the Lung-hai system, in a report to Government, states that construction work on the extensions of this line is proceeding satisfactorily and the Tangkuan-Sian extension is now open as far as Huahsien, in north-eastern Shensi. The new Taierchwang-Chaochwang branch was to have been opened for traffic in July. By the end of August the harbour works at Lienyun, near Haichow, the eastern terminus of the system, are expected to be completed.

The Lay-out of Railway Annual Accounts*

The form of annual accounts which the railway companies of Great Britain must work to is as prescribed by the Minister of Transport in pursuance of the powers vested in him by Section 77 (1) of the Railways Act, 1921, the rendering of the accounts being governed initially by the Railway Companies (Accounts and Returns) Act, 1911. Railway companies are required to adopt the "double-account" system under which accounts are maintained showing the transactions on capital account separately from those relating to the normal income and expenditure of the company. Thus, the printed accounts are issued giving the financial data in two main compartments, *i.e.*, Accounts Nos. 1-7 deal with capital receipts and capital expenditure, the accounts numbered 8 to 16 covering the gross receipts and the expenditure in relation to the separate sections of operation, *viz.*: Railways, Road Transport, Steamboats, Canals, Docks, Hotels, Collection and Delivery; there is also, of course, a general Balance Sheet (Account No. 19) showing in the prescribed statutory form the liabilities and assets of the whole undertaking.

It will be gathered that, with the necessary preparation of separate results of capital transactions, the task of determining the precise allocation of the various transactions to the appropriate heading sometimes presents difficulty; for example, the company may be passing payments to a particular contractor for work done, some of which may be on capital account, and some on revenue account, and there is the further point that the nature of a given transaction is not always clearly apparent from the documentary data.

The account containing the largest of the annual figures is, naturally, that in respect of railway working; in 1933, railway traffic receipts accounted for nearly 90 per cent. of the gross receipts of the L.M.S. company from transport, catering, &c. The railway receipts are classified in the printed accounts to show the respective amounts for passenger traffic, parcels, &c., traffic, mails and parcel post business, and for various sections of goods train traffic, these classifications being founded on the data supplied by the stations through the medium of the monthly accounts current. The station totals require to be amplified to cover Clearing House and other settlements with the various railway companies and outside interests. The expenditure on railway working calls for a statutory separation of outgoings into several abstracts (lettered A to H), with other separations in relation to law charges, compensation, rates paid to local authorities, &c.; each of the seven abstracts again has several subdivisions which must be observed in issuing the statement of annual accounts. The abstract containing the largest total of expenditure is that headed Traffic Expenses and lettered "D." Here it may be mentioned that, whilst the headings in Abstract "D" number 20 only, to comply with Government requirements, yet the L.M.S. Company for internal purposes maintains numerous subclassifications which reach the total of about 170 for Abstract "D," and a similar procedure is followed for all other accounts and abstracts. It is, therefore, no exaggeration to say that there are some thousands of separate headings which are worked to in compiling the L.M.S. Company's accounts. The respective Abstracts A to H have the following designations and functions: "A," Maintenance of Way and Works, for all revenue expenditure connected with the upkeep of the permanent way, signalling, stations, &c.; "B," Maintenance of Rolling Stock, for the expenditure on upkeep of locomotives, carriages and wagons; "C," Locomotive Running Expenses, for all expenditure on train working; "D," Traffic Expenses, for station, &c., staff salaries and wages, shunting expenses, cleansing of vehicles, advertising, &c.; "E," General Charges, containing the expenditure on general administration, superannuation, &c., funds costs, &c. There is no Abstract "F," as this has been abolished since the original conception of the present form of accounts; Abstracts "G" and "H" have reference to the balance of payments between the railway companies for interworking and hire of stock.

In general terms, the narrative given as to the Railway Working Account of Receipts and Expenditure also applies to the accounts of the ancillary businesses, such as canals, docks, hotels, steamboats, &c., this indicating the scope of the further spread of the classification, both in regard to headings required by law and also the much extended headings adopted for the company's own needs for purposes of control, operation, &c.

Joint Lines

Abstract "J" has reference to joint line undertakings. These range, in the case of the L.M.S. Company, from the important railway known as the Cheshire Lines Committee (1933 gross receipts, £1,403,000 odd) to the separate Methley Railway Joint Committee with its total 1933 gross receipts of some £16,000. Either as accountant or auditor of the respective joint committees, the L.M.S. Chief Accountant's Department is closely concerned with the compilation of the accounts of these joint lines, which are 12 in number. The net result to the company of these joint lines is carried to Account No. 8, which is entitled "Revenue Receipts and Expenditure of the whole undertaking."

Account No. 8, "Revenue Receipts and Expenditure of the whole undertaking," is virtually the most important of all the sections of the annual accounts. It is through the medium of this section that the totals making up the entry "Net Revenue for the Year" are established. Starting from the net receipts from railway working, and from other businesses (canals, docks, &c.) and joint lines, as already described, there follow the rents from houses and lands, &c., owned by the company, other rents, including lump sum tolls—which comprise easements and wayleaves—advertising spaces, bookstall rents, and interest payable by another company on the cost of stations, or rents received in respect of accommodation provided for another company at the particular company's stations, interest and dividends from investments in other undertakings (which include the company's interest in the omnibus undertakings), general interest on bank balances, and deductions for interest on superannuation and other funds held on behalf of the beneficiaries, and rents paid in respect of Leased and Worked undertakings, which latter are shown in detail in the Company's Accounts.

Account No. 8 also shows the net revenue for the year, and is followed by Account No. 9, in which the net revenue is supplemented at times by appropriations from various sources, e.g., General Reserve, and after this summation there is then deducted the various amounts of dividends upon the stocks held as such available balance allows.

Statistical Data

Part II of the annual statutory publication deals with the Statistical Returns. No. 1 of these returns relates to the mileage of the company's lines, showing the length of the running lines in gradations of first track, second track, and so on, and giving a total single track mileage which, for the L.M.S. Company, is no less than 19,414 miles (1933 data). Statistical Return No. 2 gives particulars of the rolling stock, &c., the quantities of various types of locomotives and tenders owned, the numbers and seating capacity of the carriages, a classification of wagons under 21 different headings, and a description of the various types of service vehicles, *e.g.*, ballast wagons. Then follow statistics as to other types of property, and as to the quantities of rails, sleepers, &c., used in maintaining the track during the year, also the numbers of rolling stock renewed and repaired during the 12 months, both in the company's workshops and by contractors. Statistical Report No. 12 is an important computation of the mileage run by the company's engines during the year, divided

* Abstract of an article by Mr. E. Taylor, F.I.P.A., M.Inst.T., Chief Accountant, L.M.S.R. Published in the July issue of the "L.M.S. Magazine."

separately into coaching and goods train mileage, with a similar subdivision for shunting miles, and with a record of "light," "assisting," &c., mileages. These mileage figures are, of course, a valuable aid in measuring performances in the light of other financial and statistical data which are either published by the company or are maintained for internal purposes. The remaining Statistical Returns (Nos. 13, 14 and 15) deal with particulars of traffics carried, the final Return (No. 16) containing a summary of the company's financial results over the series of years from 1927 onwards.

There is, of course, an auditor's certificate included in the published annual accounts. A somewhat unusual inclusion is a reproduction of the certificate of the officers concerned to the effect that the company's property, for the upkeep of which they are responsible, has been maintained in good condition during the year. Finally, the accounts and returns are signed on behalf of the directors by the Chairman and Secretary of the Company.

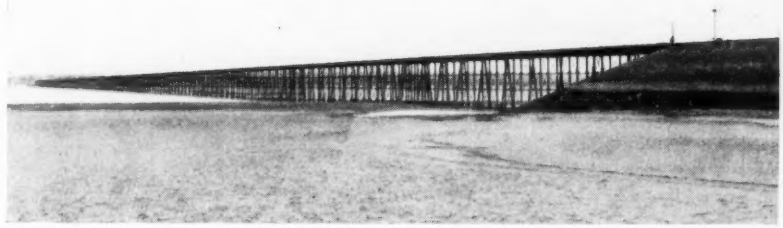
Throughout the expenditure accounts will be found reference to "Transfers to or from Renewal Account," which involves a special problem as to accounting for the expenditure upon renewal of the company's physical assets.

Railway Conciliation Machinery

Last week we referred to the resumed discussions on the subject of revised negotiating machinery for the railway conciliation grades, more particularly as to the constitution and functions of a tribunal to replace the National Wages Board. These discussions are to be further resumed on August 20.

The main proposals of the companies as outlined in the report of the Joint Sub-Committee were the establishment of a Railway Staff National Conference, the constitution and functions of which would be broadly similar to those of the Central Wages Board, and a Railway Staff National Tribunal. The suggestion was that this tribunal should consist of three members—one member to be selected by the companies; one member to be selected by the trade unions; and a chairman to be appointed by agreement between the companies and the unions. It was stipulated that no railway director or official and no official or member of a trade union should be eligible to sit on the tribunal. It was further proposed that no question should be referred to the tribunal except by agreement between the parties and upon agreed terms of reference; that the tribunal should deal only with matters of major importance; that the proceedings should be private; and that decisions, whether unanimous or by a majority, should be binding upon the parties to any agreed reference.

Demolition of the Solway Viaduct

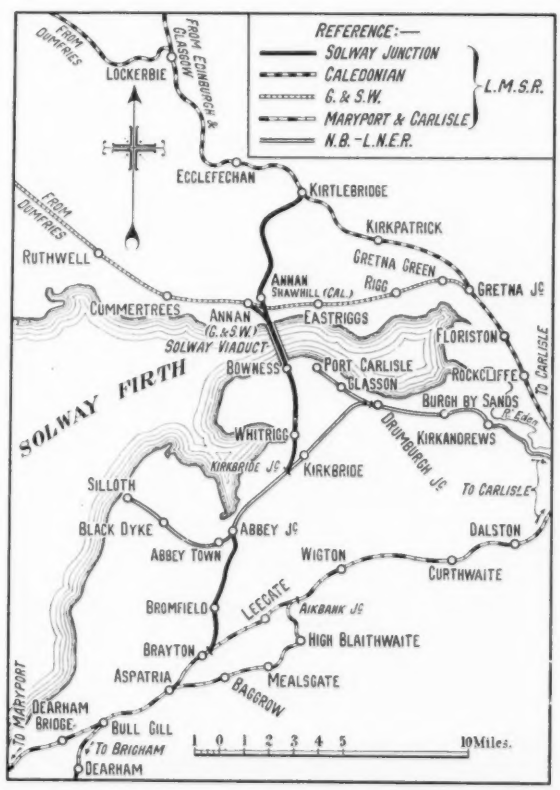


The last stage in the strange and chequered history of the Solway Junction Railway is now being completed, as arrangements have been made between the L.M.S.R. and Arnot, Young & Co., of Glasgow, for the demolition of the famous viaduct across the Solway between Bowness and Annan; the work of dismantling the long structure will, it is stated, take over a year.

The Solway Junction Railway was incorporated on June 30, 1864; its main lines, including the famous viaduct, were opened for goods traffic in September, 1869, and for passengers in July, 1870. The viaduct is 1,940 yards in length—the longest bridge between England and Scotland, and second only in length among British railway bridges to the Forth Bridge itself—and is built of cast iron, consisting of 181 single piers and 12 double piers. Although the complete bridge carried only a single line of rails, foundations were laid in for a double-line structure if required. The single piers of the viaduct were constructed each of five cast-iron columns, the latter standing on cast-iron piles driven to a depth of from 18 to 21 feet.

The structure was damaged considerably by storms during the winter of 1875-6, while during the great frost of January, 1881, some of the piers were carried away by ice floes and altogether 45 piers and 37 girders collapsed. Authority was obtained from Parliament for raising £30,000 for repairs, and the line was reopened on May 1, 1884. It was finally closed on September 1, 1921, owing to its being no longer safe for traffic. At that time the estimated cost of repairs was £70,000. Various suggestions have been put forward from time to time that it should be converted into a road or foot bridge. Incidentally, the L.M.S.R., which has now arranged for its demolition, has never had the use of the viaduct for railway purposes!

A comprehensive article on the history of the Solway Junction Railway appeared in the January, 1932, issue of our monthly associated contemporary *The Railway Magazine*.



Map showing position of Solway viaduct and railway connections

The Great Western Railway and South Wales

As mentioned last week, Sir Robert Horne, Chairman of the Great Western Railway, accompanied by a number of Directors, Sir James Milne, General Manager, and the chief officers of the company, paid a visit of inspection to Newport on Thursday, August 2. Sir Robert Horne presided over a luncheon in the Newport (High Street) station restaurant, at which representatives of the principal trading interests were guests. Among them were the following:—

Mr. H. L. Armstrong, Managing Director, The British Mannesmann Tube Co. Ltd.; Mr. J. J. Ashton, Chairman, Newport Shipowners' Association; Mr. Roger Chapman, Chairman, Shipping Federation (Newport) Limited; Councillor F. J. Humphries, J.P., Mayor of Newport; Mr. Clifford C. Jones, Chairman, Newport Sub-Committee, Bristol Channel District Association of Chartered Shipbrokers; Mr. J. H. Lones, Managing Director, The Blaenavon Co. Ltd.; Major C. G. Martyn, J.P., Chairman, Newport Pilotage Board, High Sheriff of Monmouthshire; Mr. W. Mordey, J.P., Director, Mordey, Son & Co. Ltd.; Alderman John Moxon, O.B.E., Director, R. E. Jones Limited; Mr. John Paton, J.P., Chairman, Partridge Jones & John Paton Limited; Mr. W. T. Stephens, President, Newport Chamber of Trade; Mr. L. D. Whitehead, D.L., J.P., Managing Director, Whitehead Iron & Steel Co. Ltd.; Mr. W. D. Woolley, J.P., Director, Tredegar Iron & Coal Co. Ltd.

The Great Western Railway directors and officers present were:—

Directors: Rt. Hon. Sir Robert Horne, G.B.E., K.C., M.P. (Chairman), Rt. Hon. Lord Davies, Sir Henry Mather-Jackson, Bt., C.B.E. (Lord Lieutenant of Monmouthshire), Sir Henry B. Robertson, Sir William James Thomas Bt.

Officers: Sir James Milne; Messrs. J. Auld, W. E. Baines, C. J. T. Billingham, S. A. Blackall, R. H. K. Blackwell, R. Carpmael, C. B. Collett, C. R. Dashwood, F. R. E. Davis, M. C. Harrison, C. M. Jacobs, A. Maynard, C. S. Page, F. R. Potter, A. S. Quartermaine, Trevor Roberts, H. B. Smith, J. H. Swallow, W. J. Thomas, F. G. Wainwright, and H. L. Wilkinson.

Sir Henry Mather-Jackson, proposing the toast of "The Town and Trade of Newport," said that this was the first time he had proposed a toast since his appointment as Lord Lieutenant of Monmouthshire, and he felt the subject was a most appropriate one. It was 40 years since he became a director of the old Alexandra Docks & Railway Company, and he, Colonel Lindsay, and Mr. Stanley Baldwin were the only survivors of the directorate at the time the company was taken over by the Great Western Railway. The trade of Newport had all along increased until recently owing to its docks, which were equipped to deal with a larger business than was being done at the present day.

The Mayor, responding, said the public of Newport realised that they were well served by the Great Western Railway and were highly pleased with the long distance service of trains. He appealed to the Chairman for his personal interest and co-operation in arriving at some amicable arrangement over the difficulty which had arisen in connection with the docks at Newport.

Alderman John Moxon, proposing the toast of "The Great Western Railway Company," thanked the Chairman for this opportunity of meeting him and his co-directors, and hoped that this was the fore-runner of many visits to Newport. Continuing, Alderman Moxon pointed out that Newport no longer had the benefit of its geographical position in regard to the coal which used to be shipped there, but was now going in increasing quantities eastward. Newport had two or three movable appliances at the North Dock, but the ships that could use them were limited. Newport should be able to offer the same inducements in the way of quick despatch as were given at rival ports.

Sir Robert Horne, in his reply, said that the Great Western Railway had a very definite and important interest in Newport. It found employment there for 3,500 men and paid wages and salaries to the extent of £600,000 a year. They had spent about £400,000 at Newport, had put into the docks 27 new electrical cranes, had greatly extended the railway sidings, and had put in 20-ton appliances. If it was felt that there was anything wanting which his company could supply, they would take every means in their power to improve things at Newport, which at present was far from being a source of revenue to the railway. They had £21,000,000 invested in the docks of South Wales, but the revenue from them had been the most disappointing part of the revenue of the system. People looked at the figures of increasing railway revenues and forgot the appalling decline of revenues in past years. Even now the railway revenues were many millions behind those of 1930. In 1923 Newport shipped about 7,000,000 tons of coal, but last year about one-third of that quantity. International reasons accounted for much of this loss of trade, and in addition the action of the District Coal Committee had deprived Newport of the advantage of its geographical position. There was no intention on the part of the Great Western Railway to have fewer appliances at Newport than were adequate for the traffic.

A Veteran Editor

The editor of our esteemed contemporary *Archiv für Eisenbahnwesen*, Exzellenz Dr. Alfred von der Leyen, recently celebrated his ninetieth birthday in excellent health and mental activity, and we desire to add our congratulations to the many others which he has already received from various quarters. Dr. von der Leyen was born at Goldschmieding on June 28, 1844, and studied at the Universities of Tübingen, Berlin, and Heidelberg with the intention of following a legal career. He obtained the degree of Doctor of Laws in 1865 and entered State service in that year, holding various legal appointments in different cities and in the Prussian Ministry of Justice until 1876, by which time he had been led to take a great interest in transport questions, some of his work having been connected with marine business. A criticism he had published on a proposed Imperial Railway Bill attracted the attention of President Maybach, of the Imperial Railway Office, and led to Dr. von der Leyen being appointed to an important post in that department at the beginning of 1876. President Maybach became Prussian Minister of Public Works in 1879 and shortly afterwards invited Dr. von der Leyen to accept a new post under him. It was then that he took charge of the publication now known as the *Archiv*, and which he has conducted with such success for what must surely be a record period for an editor. In 1883 the President of the Northern Pacific Railroad, Mr. Villard, a German by descent, invited numerous European guests to witness the completion of the line, among them Dr. von der Leyen, who was thus enabled to make an extended tour of North America. Returning home, his activities were for many years connected with important questions of rates and fares, railway organisation, and the giving of lectures and courses on them at numerous colleges and universities.

The editorship of the *Archiv* absorbed a large amount of his time and many articles therein, as well as separate publications, have come from his pen, including two on North American railways and one on Bismarck's State railway policy. On his retirement in 1912, Dr. von der Leyen was granted the title of Exzellenz in acknowledgment of his services to railway science and literature, and to the State. Although nominally retired he continued to be active in many directions, particularly in technical education, and has been to the present time a familiar figure at the gatherings of railway officers and engineers, while constantly serving in a consultative capacity. Only three years ago he took charge of the editing of the special issue of the works of Friedrich List, the German railway pioneer, and, although his sight is now failing somewhat, the *Archiv* continues to be his particular care. Under his guidance it has become one of the most important sources of information in the German language on railways in every part of the world. Dr. von der Leyen is also interested in many charitable activities and is President of the Berlin Shipwrecked Mariners' Association.

Home Railway Returns for 1933

Returns of the capital, traffic, receipts, working expenses, and operating results of the railway companies of Great Britain for the year 1933 have now been issued by the Ministry of Transport, following on the preliminary statement published in March. The aggregate figures do not now include those of the railway undertakings now vested in the London Passenger Transport Board and the comparative figures of earlier years have been adjusted accordingly.

The amount appropriated for the payment of interest and dividends in 1933 was £30,832,409, compared with £28,840,481 in 1932, £35,090,153 in 1931, and £40,366,120 in 1930. These figures represent 2·76 per cent., 2·59 per cent., 3·16 per cent., and 3·64 per cent., respectively, upon the total capital receipts. On ordinary stock issued the average return per cent. was 0·76 in 1933, against 0·57 in 1932, 0·95 in 1931, and 2·20 in 1930.

The length of road open for traffic at December 31, 1933, was 20,251 miles, a decrease of 14 miles. Expressed as single track, the total mileage of running lines was 37,001 miles (an increase of 52 miles), and of sidings 15,637 miles (an increase of 45 miles). Of traffic locomotives there were 20,983 steam, against 21,471, electric 13 (the same), and petrol 9 against 8. Amongst rail-motor vehicles are included 1,489 electric, against 1,542, and 160 "other," against 170. Passenger-carrying vehicles together numbered 45,069, a decrease of 1,057. The stock of Pullman cars in use decreased from 259 to 225. The number of merchandise and mineral vehicles fell from 668,324 to 647,000, and the total tonnage capacity of these vehicles, excluding brake vans (13,395), was 7,286,991 tons, a decrease of 183,232 tons. The average capacity per vehicle rose, however, from 11·41 tons to 11·50 tons. Twelve-ton wagons have increased in number from 154,118 in 1925 to 262,767 in 1932 and 266,330 in 1933. Of wagons (other than special vehicles) of 20 tons capacity and over there were 28,514 at the close of 1933, of which 26,446 were allocated specially to mineral traffic, the corresponding figures at the end of 1932 being 26,688 and 26,700 respectively. Private owners' vehicles registered in 1933 included 4,130 20-ton coal wagons, ten 20-ton tank wagons, and 371 12-ton coal wagons. Railway-owned containers increased from 7,027 in 1932 to 8,553 in 1933.

Total receipts from passengers were £51,124,598, an increase of £215,607 or 0·42 per cent., principally due to summer tickets and other reduced fares. Passenger journeys at standard fares were only 16·57 per cent. of the total ordinary passenger journeys in 1933 as against 64·97 per cent. in 1924, the corresponding receipts being 21·88 per cent. in 1933 and 65·59 per cent. in 1924. Higher-class merchandise receipts in 1933 were £37,676,628 against £37,894,491 in 1932, the corresponding tonnages being 42,479,210 and 42,508,382. The weight of coal, coke and patent fuel conveyed in 1933 was 165,451,758 tons, a decrease of 1,741,575 tons, with receipts of £30,201,473, a decrease of £987,706. In merchandise and minerals (classes 1-6), however, the tonnage increased from 39,910,149 to 43,116,527 and the receipts from £10,679,521 to £11,661,956. Excluding free-hauled traffic, the average haul for higher-class merchandise traffic and live stock was 101·67 miles in 1933 compared with 99·08 miles in 1932, and the average receipt per ton-mile 2·097d. against 2·161d. Similarly, the average haul for minerals and merchandise (classes 1-6) increased from 62·66 miles to 63·79 miles, and the average receipt per ton-mile fell from 1·028d. to 1·021d. For coal, coke and patent fuel the average receipt per ton-mile remained stationary at 1·046d., and the average haul fell from 42·91 miles to 41·96 miles. The average receipt per ton of merchandise (excluding classes 1-6) was 17s. 8¾d. compared with 17s. 10d. in 1932, per ton of minerals and merchandise (classes 1-6) 5s. 5d., compared with 5s. 4¼d., and per ton of coal, coke and patent fuel 3s. 7¾d., compared with 3s. 8¾d. For all goods train traffic, excluding live stock, the average receipt per ton was 6s. 4d., compared with 6s. 4¾d. in 1932. As in 1932 the average receipt per freight train-mile for all freight, including live stock, was 13s. 2d. Mention is made in the returns of the first air service to be operated by a railway company in Great Britain, between Cardiff and Plymouth and subsequently extended to Birmingham.

British Railway Capital, 1933

	£
Capital authorised	1,219,312,035
Capital created	1,144,411,264
Capital issued	1,126,721,053
Deduct balance of nominal additions and deductions ...	44,579,345
Capital issued (excluding nominal additions and deductions)	1,082,141,708
Add balance of premiums and discounts	33,900,822
Deduct calls in arrear and amount uncalled	39,031
Sinking fund debenture stock redeemed	68,303
Total capital receipts	1,116,071,802
Capital expenditure :—	
On railway	1,009,021,192
On road vehicles and garages	6,101,233
On steamboats, &c.	9,387,060
On docks, harbours and wharves	70,946,111
On hotels	9,586,966
On electric power stations, &c.	3,426,560
Subscriptions to companies other than railway ...	9,749,782
Total capital expenditure ...	1,174,227,461
Capital expenditure in excess of capital receipts	58,155,659
Total capital powers and other assets available for future expenditure	28,736,132

Table of Revenue Receipts and Expenditure

	Year 1933			Year 1932		
	Gross receipts	Expenditure	Net receipts	Gross receipts	Expenditure	Net receipts
	£	£	£	£	£	£
Railway	149,642,627	123,122,760	26,519,867	149,648,189	125,227,747	24,420,442
Road transport ...	538,783	458,001	80,782	474,524	408,935	65,589
Steamboats ...	3,348,203	3,139,332	208,871	3,398,514	3,298,379	100,135
Canals	168,191	210,504	Dr. 42,313	174,263	226,827	Dr. 52,564
Docks, harbours, and wharves ...	6,349,678	5,953,328	396,350	6,426,944	6,034,220	392,724
Hotels, refreshment rooms, and cars...	5,048,092	4,599,675	448,417	4,980,423	4,585,492	394,931
Collection and delivery, parcels and goods ...	4,474,550	5,147,053	Dr. 672,503	4,287,349	5,267,551	Dr. 980,202
Other separate businesses ...	9,045	15,196	Dr. 6,151	14,264	13,820	444
Total	169,579,169	142,645,849	26,933,320	169,404,470	145,062,971	24,341,499
Miscellaneous receipts (net) :—						
Rents (houses, lands, hotels, lump sum tolls, &c.)			3,550,877			3,582,927
Interest and dividends from investments in other undertakings			517,814			462,255
Transfer fees			24,594			19,369
General interest			1,144,097			1,434,139
Special items			421,257			317,515
Total net receipts			32,591,959			30,157,704
Deduct miscellaneous charges (interest on superannuation funds, chief rents, rent charges, rents of leased undertakings, &c.)			3,002,870			2,963,403
Net revenue for the year			29,589,089			27,194,301
Balance brought forward from last year's account			67,271			Dr. 19,910
Special items			1,283,516			978,284
Appropriation from general reserve			50,125			754,140
Amount available for appropriation			30,990,001			28,906,815

RAILWAY AND OTHER REPORTS

London Passenger Transport Board.—The board has issued a provisional statement for the first financial year ended June 30, 1934, drawn up in accordance with Section 3 of the London Passenger Transport (Interim Financial Arrangements) Act, 1934. The estimated balance of the revenues after making such provision or reserve as the board deems adequate is £4,778,782. From this falls to be deducted £1,850 for instalment of tramway debt liquidation fund; £41,000 to local authorities for interest on tramway loans; interest on London Transport stocks, 4½ per cent. A Stock, £1,061,879; 5 per cent. A Stock, £749,005; 4½ per cent. T.F.A. Stock, £566,235; 4½ per cent. L.A. Stock, £442,577; and 5 per cent. B Stock, £1,173,195; amount payable under guarantee of interest on Central London (new) guaranteed assented stock, £34,303. These payments total £4,070,044, leaving a balance of £708,738, which is sufficient to make a payment on account of the interest on London Transport C Stock for the year ended June 30, 1934, at the rate of 3 per cent. Interest at this rate, less income tax at 4s. 6d. in the £, will be paid on September 10.

Great Southern Railways.—The Secretary writes, August 3:—"Owing to the financial position of the company the directors of the Great Southern Railways at their meeting to-day decided with regret that the declaration of an interim dividend on the cumulative guaranteed preference stock and arrears due in respect thereof be deferred. No interim dividends are available on the preference and ordinary stocks of the company."

Great Northern Railway (Ireland).—The Secretary writes, August 2:—"The accounts of the company for the half-year to June 30, 1934, have now been made up and audited. The results show a substantial deficiency which, however, together with the interest on the consolidated 4 per cent. debenture stock and the full dividend for the half-year on the consolidated 4 per cent. guaranteed stock, has proved to be somewhat less than the amount of the free reserves available at June 30, 1934. The directors therefore have ordered that the dividend be paid (less income tax) forthwith to the 4 per cent. guaranteed stockholders standing on the company's register on July 14 last."

Dorada Railway.—Revenue in 1933 was £89,529 (taking exchange at $5.4088 = £1), against £81,085 for 1932 (exchange taken at $5). The railway handled nearly 29,000 tons more of goods than in 1932, but passenger traffic continued to fall off. In spite of the larger tonnage, working expenses were further reduced by £14,864, to £66,221, the working profit being £23,308, against £6,101. In view of the fall in the value of the Colombian peso there was a loss on exchange of £31,606, which is written off against net revenue account. The credit balance to go forward on net revenue account is reduced from £44,845 to £25,142. The ropeway branch earned a profit of £10,182, against £6,017 in 1932, the increase being due largely to savings in expenses.

Metropolitan Railway Surplus Lands Co. Ltd.—The board has declared an interim dividend of one and three-eighths per cent. for the half-year ended June 30, 1934.

Costa Rica Railway.—The accounts for the year to June 30 show that £137,100 (against £145,987 for 1932-33) was received as rental from the Northern Railway Company, while income from investments amounted to £13,927 (against £12,941). After meeting debenture charges, general expenses, taxes, &c., and the annual sinking fund payment of £3,000 to the Committee, there is shown a balance, including £12,304 brought forward, of £55,147. A dividend of 2 per cent. is again proposed for the year, leaving £19,147 to be carried forward.

Tanganyika Concessions Limited.—The accounts for 1933 of this company, of which the principal investments are in the Benguela Railway Company, the Rhodesia-Katanga Company, and the Union Miniere du Haut Katanga, show that the income was only £19,442, against £306,694 for 1932. After meeting all expenses there is a debit balance for the year of £19,900, compared with a credit balance of £272,297 for 1932. This is carried forward, as well as £125,442 advanced to the African Railway Finance Company, representing payments under the guarantee on the loans raised under the Trade Facilities Acts for the completion and equipment of the Benguela Railway.

Aldershot & District Traction Co. Ltd.—This company, which is controlled jointly by the Southern Railway Company and Tilling & British Automobile Traction Limited, secured during the year ended May 31, 1934, traffic receipts and other revenues amounting to £302,626. After deducting all expenses chargeable to revenue, including depreciation, the profit for the year amounts to £20,624. After transferring £5,000 to general reserve there remains £15,624, which, added to £15,930 brought forward, leaves an available balance of £31,554. The directors recommend a dividend of 7½ per cent. on the share capital, which will absorb £15,000 and leave £16,554 to be carried forward. In accordance with the provisions of the London Passenger Transport Act, 1933, part of the undertaking operating to the east of Guildford, including the garage at Ewhurst, was, on August 2, 1933, transferred to the London Passenger Transport Board. The surplus on this transfer, amounting to £17,324, has been carried to general reserve.

Birmingham Railway Carriage & Wagon Co. Ltd.—The directors have declared an interim dividend at the rate of 6 per cent. per annum on the 6 per cent. preference shares for the half-year ended June 30, 1934.

William Asquith Limited.—After charging all trading expenses and depreciation, the result of trading for the year ended March 29, 1934, was a loss of £8,676. Directors' fees (£457) and losses on subsidiary companies (£5,260) bring the total loss up to £14,393. There was brought forward from last year a balance of £18,773, out of which a dividend for the six months to March 31, 1932, at the rate of 8 per cent. per annum, less tax, on the preference shares has been paid, leaving a sum of £13,784. Deducting the above loss of £14,393 leaves a loss of £609 to carry forward to next year.

Brazilian Central Railway Schemes Connected with Electrification

In connection with the electrification of its suburban lines, the Central Railway is considering the conversion to 1·60 metres of the metre-gauge "Auxiliar" lines as far as São Matheus, and the utilisation thereon of the broad gauge rolling stock which will be released by the introduction of the new electric trains. It is intended subsequently to run the whole of the "Auxiliar" and "Rio d'Ouro" services (which at present use independent termini at Alfredo Maia and Francisco Sá respectively) from Dom Pedro II station, and steps are already being taken towards demolishing various premises in the vicinity of the main station to enable the necessary extension of the lay-out to be effected. Another important engineering work consists of the widening of the Lauro Muller Viaduct (situated a short distance from the terminus) to accommodate additional tracks.

As a result of experiments carried out over a period of two or three weeks, it was decided at the end of June to discontinue the use of the "circular line" in Dom Pedro II terminus, whereby incoming trains, after discharging their passengers, have hitherto been worked to their respective departure platforms, without the necessity of running engines round or bringing out fresh engines for the outward journey. The idea is to accustom the staff to working without the "circular line," since, with the remodelling of the station for electrified working, this line will be removed. Although delays were experienced at the outset, as was to be expected, the new system is now giving entire satisfaction. A special credit has been opened in the National Treasury, amounting to 2,500 contos, to cover the cost of these alterations and other works preparatory to electrification.

NOTES AND NEWS

Barkingside Station Sunday Service.—The L.N.E.R. announces that Barkingside station, which has hitherto been open on Sundays during the summer months only, is in future to be open on Sundays throughout the year.

Dover, St. Margarets & Martin Mill Light Railway.—This company proposes to apply to the Ministry of Transport to extend for one year as from October 11 next the time limited by the Dover, St. Margarets & Martin Mill Light Railways Order, 1909, for completion of the works authorised by that Order.

Institute of Patentees.—This institute now occupies premises at 10, Victoria Street, Westminster, S.W.1. No change has been made in telephone numbers or telegraphic address. The institute is now able to offer to inventors and patentees many more facilities, including writing and reading rooms. There is also sufficient space to arrange in the future laboratories and workshops.

Canadian Trade Prospects.—Discussing the improved economic conditions in Canada and their relation to railway revenues, Mr. E. W. Beatty, the President of the Canadian Pacific Railway, declared in an interview at Ottawa that business conditions throughout Canada had been steadily improving, and that the improvement would continue. Wheat remained the doubtful factor. There had been an improvement in all other classes of merchandise and this improvement had been constantly growing. The gross revenues of the two great railway systems for July were 5·4 per cent. above July, 1933, while for the first seven months of the year the increase had been 13·9 per cent. compared with the same period in 1933.

L.N.E.R. Popular Tourist Trains.—The two new tourist trains which were introduced by the L.N.E.R. in the north of England at the end of June, and which were described in our issue of July 27 last, page 145, have proved so popular that arrangements have been made for them to travel on 130 trips, covering no less than 32,000 miles, by the end of September.

Waverley, Edinburgh, to be Re-signalled.—The directors of the L.N.E.R. have authorised an extensive re-signalling scheme at Waverley station, Edinburgh. It is proposed to eliminate four existing signal boxes, and to provide a box, together with a modern installation of power signalling embracing colour light signals and a.c. track circuits, at the west end of the station. The scheme also includes the lengthening of certain platforms and an additional facing connection which will give greatly increased facilities for traffic operation.

Air and Rail Co-ordination in America.—The first international express system to provide a high-speed freight service between North and South America, which will extend the door-to-door delivery service of the U.S.A. main-line railways to 30 foreign countries, has been inaugurated. To provide the new facilities the railway services have been co-ordinated with the international air transport system. As a result of a greatly simplified procedure, effected by negotiations with 20 governments, the new service will speed up transit time for merchandise from three to 30 times faster than any service available. The U.S.A. is thus being provided with the fastest international freight transport service in the world, linking every city in the U.S.A. with more than 150 industrial centres in 30 other countries.

Scheme for Manchester Underground.—Consideration of the proposal to build a system of underground railways for Manchester is to be revived before the City Council. When the scheme was discussed in 1921, the cost was estimated at £12,000,000. It was proposed that there should be an inner circle, with stations at each of the three main line terminals, London Road, Victoria, and Central, and other stations in Piccadilly, connecting with the main city bus terminus—New Cross, Oxford Road—to link up with the Altrincham electric line—and Albert Square. This circle would serve practically all the central business areas, and would link up all existing transport services. Five radial lines would connect the inner circle with Didsbury, Levenshulme, Openshaw, Newton Heath, and Cheetham Hill. Another branch would loop through Salford and connect with the Manchester Docks.

Collision in Holland.—On August 5 one of the new Netherlands Railways diesel-electric express trains came into side collision with an ordinary train near Amsterdam. Twelve passengers were injured and considerable material damage was done, but more serious results were prevented by the fact that the diesel train was of all-metal construction.

L.M.S. Locomotive Building Programme.—It has been decided by the L.M.S.R. to construct 117 new locomotives at the company's workshops at Crewe and Derby under the 1935 locomotive renewal programme. Crewe will construct 55 new engines and Derby 62. An interesting feature of the new programme is the decision to build ten more engines of the "Princess Royal" class. This type of locomotive, of which the first two were built in 1933, is the most powerful on the L.M.S. system and has been designed for working Anglo-Scottish expresses of more than 500 tons weight over the throughout journey of over 400 miles between Euston and Glasgow and *vice-versa*. Details of the remainder of the 1935 locomotive renewal programme for the L.M.S. workshops are as follow :—

Power Class.	Type.	Number Ordered.	To be Built at
5X	4-6-0 3-cylinder ...	30	Crewe.
5	4-6-0 mixed traffic ...	5	Crewe.
7	2-8-0 freight tender ...	10	Crewe.
3	2-6-2 passenger tank...	54	Derby.
4	2-6-4 3-cylinder tank	8	Derby.

The Class 7 2-8-0 engines, of which 10 are to be built at Crewe, are of a new design prepared by the company's Chief Mechanical Engineer, Mr. W. A. Stanier, for working heavy freight trains.

British Standard Engineering Symbols and Abbreviations.—The British Standards Institution has prepared a British Standard list of engineering symbols and abbreviations. The work was undertaken by a technical committee consisting of representatives of the Government departments and the scientific and industrial organisations directly interested, and the list (British Standard No. 560—1934) has now been published. As far as it has proved possible, the most frequently used terms in all branches of engineering have been listed, but terms which are not in general use or are of limited application have not been included. The abbreviations are intended mainly for use in text books and technical papers, and the numerous abbreviations and conventional signs used on engineering plans and drawings have not been dealt with. For the most common of

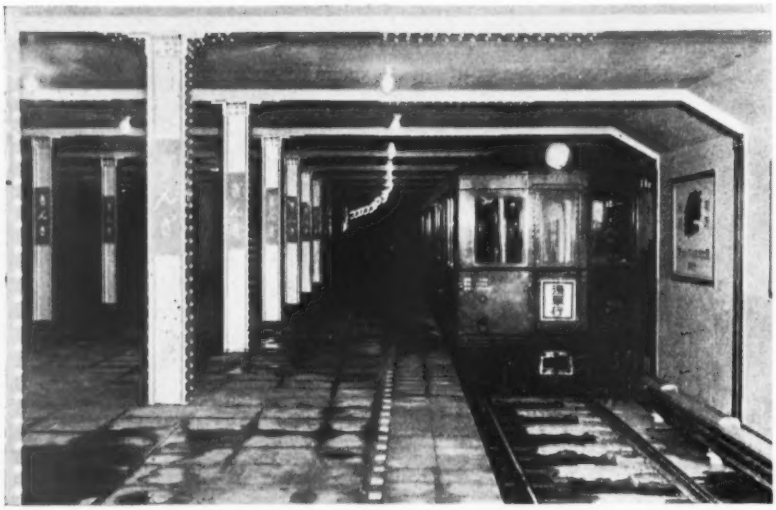
KOWLOON CANTON RAILWAY

WE SELL TRANSPORTATION.

IF YOU HAVE GOODS TO TRANSPORT,
DIAL 58071,
ASK FOR 583,
SPEAK TO THE TRAFFIC MANAGER,
ASK HIM TO SEND A SPECIAL
REPRESENTATIVE TO HELP YOU
WITH YOUR PROBLEM.

IT'S QUICKER BY RAIL.
WHY NOT SEE IF IT'S CHEAPER.

Selling transportation on the Kowloon-Canton Railway (*see editorial note on page* 211)



Train leaving Ginza station on the recently-opened Tokyo underground railway from Ginza to Asakusa. The Tokyo Subway Company has so far put into commission about five miles of its projected 50-mile underground system

these reference should be made to British Standard No. 308—Engineering Drawing Office Practice. Copies may be obtained from the British Standards Institution, 28, Victoria Street, London, S.W.1, price 3s. 6d. and 3s. 9d. post free.

Railway Wages Claim.—After individual conferences of delegates of the three railway unions their executives held a joint meeting at Unity House on Wednesday afternoon, August 8, on the claim by the unions for restoration of the cuts in railway wages instituted in March, 1931. Yesterday there was a conference on the subject between representatives of the unions and the railway general managers.

Radio Show Train.—A radio show train organised by the Bon Marché Limited of Brixton, in collaboration with the Southern Railway, was on view on Wednesday at Victoria station. The train is designed to further the retail sale of wireless products in Great Britain. It is visiting Waterloo and London Bridge and then making a tour of suburban stations within 20 miles of London.

Forth and Clyde Railway.—The L.N.E.R. has decided to withdraw the passenger train service between Stirling and Buchlyvie, and between Gartness and Balloch as from October 1. On and after that date Gargunnock, Kippen, Port of Monteith, Gartness, Drymen, Caldarvan, and Jamestown stations will be served only by freight trains. The service of passenger and freight trains between Glasgow, Blanefield, and the Aberfoyle line will not be affected, and Balfron and Buchlyvie stations will remain open for both passenger and freight train business. Milk, parcels, and other passenger train traffic will continue to be dealt with at the stations from which the passenger train service is to be withdrawn, and will be conveyed by freight train and the L.N.E.R. road motor services. Passenger road services in the district affected are afforded by W. Alexander & Sons Ltd., Falkirk, a railway-associated company in the S.M.T. group. To provide adequate services in place of the trains which are to be withdrawn, certain alterations in the road services are contemplated.

New Zealand 1933-34 Results.—The results of working the New Zealand Government Railways during the year ended March 31, 1934, now published, show that net revenue, as compared with the previous year, increased from £850,544 to £1,085,558. The aggregate increase for the last three years amounted to £396,831, or 57·62 per cent. It is gratifying to note that, whereas previous years' increases were the results of reduction of expenditure, the one in 1933-34 was due to larger revenue.

London Transport Holiday Arrangements.—The entire fleet of London Transport vehicles provided special travelling facilities in and around London to and from the many amusement centres, sporting events, and holiday resorts within the London Transport area, throughout the August Bank Holiday, and special increased railway services, new and extended bus routes, more frequent tramway services, and increased country omnibus and coach routes were at the disposal of the travelling public on the Saturday, Sunday, and Monday.

Railways and Record Holiday Rush.—On Saturday, August 4, 10,000 holiday makers left Paddington in long-distance trains in less than two hours and before ten o'clock, one express being split up into four parts and carrying a total of 3,000 persons. Records were also broken at Victoria and Waterloo, where the holiday-makers were marshalled by loud speakers. Some 200 extra trains were put on and 21,000 seats for the day were reserved from Waterloo alone. The total number of passengers travelling from Euston, St. Pancras and Fenchurch Street stations during the week-end showed in each case an increase on last year, the aggregate increase for the three stations exceeding 10,000. Heavy traffic was also carried on the L.N.E.R.

Railway Construction in Poland.—Between 1918 and 1933 the Polish Railway Administration built 33 railway lines with a total length of 1,316 km., according to a Reuters Trade Service message from Warsaw. Six more lines, totalling 235½ km., are under construction.

Large New Railway Viaduct for Spain.—Reuters Trade Service learns from Madrid that the Spanish Government has decided on the construction of a viaduct in reinforced concrete, 475 m. (1,560 ft.) long, over the river Elsa, to carry the railway from Zamora to Orense. The viaduct will have a central arch of 200 m. (656 ft.) span. The execution of the work, which will take two years, has been entrusted to a French engineer.

Plymouth as a Passenger Liner Port.—The popularity of Plymouth with ocean travelling passengers has been well illustrated this year. In the six months to the end of June, the number of overseas passengers dealt with at Plymouth was 16,815, which is an increase of over 3,000 as compared with the same period of 1933. The number of bags of mails and parcels post dealt with was well over 100,000, and was more than 5,000 in excess of the first half of 1933. An example of the facility with which the traffic is handled is given by the case of the U.S.A. liner *Manhattan*, which arrived at Plymouth recently, and landed 424 passengers, with their baggage, 1,666 bags of mails, 498 bags of parcels post, and a number of motor cars and boxes of specie in addition. The passengers were landed, baggage passed through Customs, and two special trains despatched from Millbay docks, within two hours from the time the passengers were landed at Millbay pier.

Northern Ireland Traffics.—Statistics of railway traffic and receipts in Northern Ireland for the first four months of 1934, which have been furnished by the Ministry of Commerce, make comparisons with 1932, in view of the abnormal position created by the strike early in 1933. On railways wholly in Northern Ireland, the number of passengers in the four 1934 months was 1,165,144, against 1,389,997 in 1932, and the tonnage of minerals and merchandise 201,759 against 264,717. Receipts from passengers (including season tickets) for the four 1934 months were £57,281, against £60,677, but it is to be noted that in the month of April, 1934,

the corresponding receipts were £15,986 against £14,713 in April, 1932. Goods and live stock receipts for the four 1934 months were £66,518, against £92,490 in 1932. On railways partly in Northern Ireland, the number of passengers in the four 1934 months was 1,137,992, against 1,530,837 for the first four months of 1932, receipts from passengers being £101,077 against £117,478. Goods and live stock receipts amounted to £189,359 against £280,480, and the tonnage of goods and minerals was 322,175, compared with 427,056.

Proposed Cable Railway in Poland.—For some time the erection of an aerial cable railway in the High Trata district of Poland, near Zakopane, has been the subject of lively discussion in the Polish press, reports Reuters Trade Service from Warsaw. It is now learned that an Italian industrial group has submitted a proposal for the construction of such a railway to the Polish Ministry of Communications, which is now considering the scheme. The Italians appear to have offered to accept deliveries of Polish coal in payment for the work. Part of the materials for the cable railway would be provided by Poland, but the most important part would be imported from Italy.

The Week's Road Accidents.—The Secretary to the Minister of Transport has issued the following return, for the week ended July 28, of persons killed or injured in road accidents :—

	Killed in accidents reported during the week No.	Reported during the week as having died as the result of accidents occurring in previous weeks No.	Injured in accidents reported during the week No.
England	111	25	4,704
Wales ...	6	1	202
Scotland	13	1	465
	130	27	5,371

The total fatalities of the week, as the result of road accidents, were, therefore, 157, as compared with 143 for the previous week.

British and Irish Railway Traffic Returns

GREAT BRITAIN	Totals for 31st Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
L.M.S.R. (6,940¾ mls.)	£	£	£	£	£	£
Passenger-train traffic...	921,000	866,000	+ 55,000	14,514,000	14,277,000	+ 237,000
Merchandise, &c. ...	418,000	407,000	+ 11,000	13,685,000	12,581,000	+ 1,104,000
Coal and coke ...	197,000	196,000	+ 1,000	7,000,000	6,709,000	+ 291,000
Goods-train traffic ...	615,000	603,000	+ 12,000	20,685,000	19,290,000	+ 1,395,000
Total receipts	1,536,000	1,469,000	+ 67,000	35,199,000	33,567,000	+ 1,632,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic...	526,000	507,000	+ 19,000	9,257,000	9,156,000	+ 101,000
Merchandise, &c. ...	292,000	284,000	+ 8,000	9,515,000	8,662,000	+ 853,000
Coal and coke ...	196,000	189,000	+ 7,000	6,989,000	6,371,000	+ 618,000
Goods-train traffic ...	488,000	473,000	+ 15,000	16,504,000	15,033,000	+ 1,471,000
Total receipts	1,014,000	980,000	+ 34,000	25,761,000	24,189,000	+ 1,572,000
G.W.R. (3,750 mls.)						
Passenger train traffic...	398,000	383,000	+ 15,000	6,034,000	6,067,000	— 33,000
Merchandise, &c. ...	185,000	182,000	+ 3,000	5,521,000	5,099,000	+ 422,000
Coal and coke ...	89,000	92,000	— 3,000	3,054,000	3,026,000	+ 28,000
Goods-train traffic ...	274,000	274,000	—	8,575,000	8,125,000	+ 450,000
Total receipts	672,000	657,000	+ 15,000	14,609,000	14,192,000	+ 417,000
S.R. (2,176 mls.)						
Passenger-train traffic...	483,000	475,000	+ 8,000	8,823,000	8,707,000	+ 116,000
Merchandise, &c. ...	65,000	63,000	+ 2,000	1,943,000	1,852,500	+ 90,500
Coal and coke ...	29,000	27,000	+ 2,000	964,000	900,500	+ 63,500
Goods-train traffic ...	94,000	90,000	+ 4,000	2,907,000	2,753,000	+ 154,000
Total receipts	577,000	565,000	+ 12,000	11,730,000	11,460,000	+ 270,000
Liverpool Overhead ... (6½ mls.)	1,307	1,215	+ 92	35,060	34,441	+ 619
Mersey (4½ mls.) ...	3,791	3,934	— 143	127,602	122,279	+ 5,323
*London Passenger Transport Board ...	515,900	514,000	+ 1,900	2,654,900	2,621,200	+ 33,700
IRELAND						
Belfast & C.D. pass. (80 mls.)	3,708	3,911	— 203	77,357	77,901	— 544
" " goods	472	470	+ 2	16,167	16,355	— 188
" " total	4,180	4,381	— 201	93,524	94,256	— 732
Great Northern pass. (562 mls.)	15,550	14,550	+ 1,000	290,200	205,700	+ 84,500
" " goods	9,650	8,150	+ 1,500	253,150	179,800	+ 73,350
" " total	25,200	22,700	+ 2,500	543,350	385,500	+ 157,850
Great Southern pass. (2,158 mls.)	34,343	37,660	— 3,317	714,090	691,736	+ 22,354
" " goods	31,223	27,889	+ 3,334	988,200	922,860	+ 65,340
" " total	65,566	65,549	+ 17	1,702,290	1,614,596	+ 87,694

* 5th week, the receipts for which include those undertakings not absorbed by the L.P.T.B. in the corresponding period last year ; last year's figures are however adjusted for comparative purposes

British and Irish Railway Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices Aug. 8, 1934	Prices Rise / Fall
G.W.R.				
Cons. Ord. ...	55½	31	51	+1
5% Con. Prefce. ...	109¾	69½	113	—
5% Red.Pref.(1950)	109¼	87½	110½	—
4% Deb.	108 15/16	99¼	109	+1/2
4½% Deb.... ...	108	100¾	109½	+1
4½% Deb.... ...	116	106	117½	+1
5% Deb.	128	117¼	127	—
2½% Deb.... ...	65	60	69⅛	—
5% Rt. Charge ...	124	111½	126½	+1
5% Cons. Guar. ...	122	103	125½	+2
L.M.S.R.				
Ord.	29⅞	12⅛	22	+1
4% Prefce. (1923)	51	17	44½	+1
4% Prefce. ...	72	33¼	79½	+1
5% Red. Prf. (1955)	93	47¼	99	—
4% Deb.	103¼	89½	102½	—
5% Red.Deb.(1952)	114	105	113½	+1
4% Guar.	97¼	68⅝	100	—
L.N.E.R.				
5% Pref. Ord. ...	22½	7¾	14½	+¼
Def. Ord.	10¾	4⅛	7½	+¼
4% First Prefce. ...	65½	19⅜	62	+½
4% Second Prefc .	40½	12¼	29	+1/2
5% Red.Pref.(1955)	83¾	27	83	+1
4% First Guar. ...	94¾	58¼	94	—
4% Second Guar.	89¼	48	88½	−½
3% Deb.	77	60¼	76	—
4% Deb.	102¾	80	101	—
5% Red.Deb.(1947)	112	102½	111½	+2
4½% Sinking Fund Red. Deb.	107½	98¾	107½	—
SOUTHERN				
Pref. Ord.... ...	71	27¾	72	+1
Def. Ord.	24⅜	9⅜	22	+1/2
5% Prefce. ...	107 11/16	74	113	—
5% Red.Pref.(1964)	107¾	78⅞	111½	—
5% Guar. Prefce.	124¼	102¾	125½	+1
5% Red.Guar.Pref. (1957)	115⅝	103½	114½	—
4% Deb.	107½	96¾	106	+½
5% Deb.	126½	114¼	127½	+1
4% Red. Deb. 1962–67	107¼	100	107½	—
BELFAST & C.D.				
Ord.	6	4	5	—
FORTH BRIDGE				
4% Deb.	99½	95½	101½	—
4% Guar. ...	98½	94	100½	—
G. NORTHERN (IRELAND)				
Ord.	7½	3½	5	—
G. SOUTHERN (IRELAND)				
Ord.	28	16	14	—
Prefce.	24	12⅛	16½	—
Guar.	42	16¾	46	—
Deb.	60	30⅞	63	—
L.P.T.B.				
4½% "A" ...	117⅞	112	118	+½
5% "A"	127¼	119¼	128½	—
4½% "T.F.A." ...	111¼	106	110	—
5% "B"	122½	114	121	—
"C"	86¾	74½	80	+1/2
MERSEY				
Ord.	16¼	5	12	—
4% Perp. Deb. ...	83	63⅞	86½	—
3% Perp. Deb. ...	62	51	64½	—
3% Perp. Prefce....	50⅝	27	51½	−1

* ex-dividend.

CONTRACTS AND TENDERS

Metropolitan - Cammell - Weymann Motor Bodies Limited has received an order from the L.M.S.R. for 262 2½-ton standard loading road trailers.

The L.M.S.R. has decided to place orders with British manufacturers for 50,000 grain sacks, thus making up to 615,000 the total quantity of these sacks available for hire to millers, brewers, and farmers for the conveyance of grain and provender traffic.

Owing to the increased quantities of bricks, tiles and other building trade traffics now being carried by rail, the L.M.S.R. is to order 850 additional road-rail freight containers. These orders, which will bring the total stock of L.M.S. containers up to more than 6,400, will comprise 750 H type containers of 2-tons capacity and 50 each of the C and D types.

Big G.W.R. Orders for Road Motor Vehicles

In pursuance of the Great Western Railway policy of substituting motor for horse drawn vehicles in its cartage services and further developing those services, orders for 396 motor vehicles, at a cost of £156,500, have just been placed. These orders together comprise 190 three- and six-ton mechanical horses and 206 other motor vehicles, and are divided as follows :—

John I. Thornycroft & Co. Ltd. : 20 6-ton standard vehicles and 40 2-ton Handy BE/FB4 vehicles.
Associated Equipment Co. Ltd. : 20 6-ton vehicles, of which four will have rubber-floored bodies.
Morris Commercial Cars Limited : 30 2-ton vehicles with parcels van bodies.
R. Pratt Limited : 15 Fordson tractors for show traffic and general work ; 18 2-ton Fordson trucks ; and 6 5-cwt. parcels vans.
Scammell Lorries Limited : 59 6-ton Scammell tractors, each with two trailers and 100 3-ton tractors each with two trailers.
Latil Industrial Vehicles Limited : Three tractors to move loads of 10 to 12 tons.

Frank How & Co. Ltd., manufacturer of Trogon lubricating oils, has recently received a very large order for cylinder oil for the Egyptian State Railways.

Thos. Firth & John Brown Limited has received an order from the Egyptian State Railways Administration for 140 tyres for bogie wagons at a total price of £540 10s., delivered f.o.b. Birkenhead.

Harland & Wolff Limited has received an order from the Sudan Railways for a 190-h.p. diesel shunting locomotive to be generally similar to the 175-h.p. unit recently ordered by the L.M.S.R. The locomotive will have to operate in temperatures ranging as high as 150 deg. F., and be exposed to tropical sand storms.

Ransomes, Sims & Jefferies Limited has just received an order from the South African Railways and Harbours Administration for 100 5/6 tons capacity welded frame trailers. This order is additional to that for 53 welded frame trailers recently received from the same administration and recorded in this column in our July 20 issue.

Craven Bros. (India) Ltd. has received an order from the Indian Stores Department for a Redman sliding, surfacing, and screw-cutting lathe.

Beyer, Peacock & Co. Ltd. has received an order from the Associated Locomotive Equipment Co. Ltd. for two sets of locomotive cylinders fitted with the Associated Locomotive Equipment Company's A.L.E. O.C. poppet valve gear. These cylinders are required for GS and HSM class engines, Bengal-Nagpur Railway.

The Stores Purchase Committee, Government of Mysore, Bangalore, has recently placed the following orders :—

Premier Steel Tube Co. Ltd. : Steel boiler and flue tubes.
The Superheater Co. Ltd. : Superheater elements.
Hunslet Engine Co. Ltd. : Two steel locomotive smokebox bottom castings ; one locomotive bogie centre pivot ; combination levers ; motion shaft ; 12 cast steel tender and bogie axleboxes ; four cast steel tender and bogie wheel centres ; and eccentric cranks.
Vulcan Foundry Limited : Smokebox steam pipes ; piston rods and straps ; cast steel engine and tender axleboxes ; one complete smokebox with chimney and door ; and cranks.
W. G. Bagnall Limited : Two piston-valve cylinders complete.
J. W. Roberts Limited : Asbestos mattresses for locomotives.
Bochumer-Verein A.G. : Locomotive, carriage and wagon tyres.
Metropolitan Cammell Carriage, Wagon & Finance Co. Ltd. : Carriage and wagon headstock plates and buffers.
United Steel Companies Limited : C.P. brand high-tensile steel carriage and wagon tyres.
Owen & Dyson Limited : Cast-iron wheels with high tensile steel tyres.
International General Electric Co. Ltd. : Electric lighting materials.

Important Indian Locomotive Order

Nasmyth Wilson & Co. Ltd. has secured an order for eight YB class metre-gauge superheated 4-6-2 locomotives and tenders for the Bengal North Western Railway.

Heatly & Gresham Limited has received an order for 18 coach sets of enamelled plates for Poona Mail and express rakes, Great Indian Peninsula Railway. The plates will be manufactured by Stocal Enamels Limited.

Electro Mechanics Limited has secured an order from the Great Indian Peninsula Railway for 652 mild steel planished panel plates for carriage panels. These will be manufactured by Colvilles Limited.

The Birmingham Railway Carriage & Wagon Co. Ltd. has received an order from the Trade Commissioner, Mysore, for 10 bogie trucks for carriage stock, complete with wheels and axles, to the inspection of Messrs. Rendel Palmer & Tritton, consulting engineers.

The Westinghouse Brake & Saxby Signal Co. Ltd. has received a contract from the Bombay, Baroda & Central India Railway for the supply of signalling apparatus, including colour light signals, point machines, relays and a 107-lever power interlocking frame for installation at Bandra.

D. Wickham & Co. Ltd. has received an order from the Peruvian Corporation for one standard design petrol-driven rail inspection trolley to seat two persons.

The Gloucester Railway Carriage & Wagon Co. Ltd. has secured an order from Parana Plantations Limited for ten 30-ton all steel bogie covered goods wagons.

The South African Railways & Harbours Administration is calling for tenders, to be presented in Johannesburg by September 10 for the supply of locomotive, carriage and wagon tyres, and carriage and wagon axles (1935 requirements). Further details can be obtained from the Department of Overseas Trade.

The South African Railways & Harbours Administration is calling for tenders, to be presented in Johannesburg by September 24, for the supply of one or more 3 ft. 6 in.-gauge, and one or more 2 ft.-gauge 7-seater rail motor trolleys for inspection purposes ; and one or more 3 ft. 6 in.-gauge and one or more 2 ft.-gauge light inspection rail motor trolleys. Firms desirous of offering trolleys of United Kingdom manufacture can obtain the further details from the Department of Overseas Trade.

The Egyptian State Railways Administration is calling for tenders receivable on the dates named as follow :—

Receivable at the General Management, Cairo :—
370 metric tons steel fishplates (September 12).
480 wagon tyres (August 23).
38 metric tons bolts and nuts (August 25).
780 metric tons saddles for rails (September 26).
50 sets steam turbo-electric locomotive head lamp equipments (August 30).

Receivable at Office of Superintendent of Stores, Saptieh, Cairo :—
6,000 mild steel joists (August 20).
Six bogie frames (August 21).
240 axles for four- and six-wheeled carriage and wagon stock (August 22).

Receivable at Chief Inspecting Engineer's Office, 41, Tothill Street, London, S.W.1.
4,650 kg. hexagon brass bars.
41,500 kg. mild steel round.
Two complete sets of superheater elements for engines (August 17).
200 cast steel axle boxes with front and back covers.

The Viacao Ferrea do Rio Grande do Sul is calling for tenders, to be presented in Brazil by September 18, for the supply of 2,895 cast-steel pieces for locomotives and wagons. Firms desirous of offering castings of United Kingdom manufacture can obtain the further details of this call for tenders from the Department of Overseas Trade.

Tenders are invited by the Bombay Baroda & Central India Railway, receivable at the White Mansion, 91, Petty France, Westminster, S.W.1, by August 15, for the supply of carriage and wagon buffers and locomotive tyres.

Tenders are invited, receivable by the Agent, Great Indian Peninsula Railway, Victoria Terminus, Bombay, by August 22, for the supply of steel castings for driving axle-box guide stays for XA1 and XA2 type locomotives.

OFFICIAL NOTICES

South Indian Railway Company Limited

THE Directors are prepared to receive Tenders for the supply of :—

LAMINATED SPRINGS.

Specifications and Forms of Tender will be available at the Company's Offices, 91, Petty France, Westminster, S.W.1.

Tenders, addressed to the Chairman and Directors of the South Indian Railway Co. Ltd., marked "Tender for Laminated Springs," with the name of the firm tendering, must be left with the undersigned not later than 12 noon on Friday, the 24th August, 1934.

The Directors do not bind themselves to accept the lowest or any Tender.

A charge, which will not be returned, will be made of 5s. for each copy of the Specification.

Copies of the drawings may be obtained at the Offices of the Company's Consulting Engineers, Messrs. Robert White & Partners, 3, Victoria Street, S.W.1.

A. MUIRHEAD,
Managing Director.

91, Petty France,
Westminster, S.W.1.
8th August, 1934.

The Chinese Government Purchasing Commission

THE Commission is prepared to receive Tenders from British manufacturers only for the supply of :—

(*a*) 380 TYRES,
270 ENGINE AND WAGON AXLES.

(*b*) 120 LAMINATED SPRINGS,
1,280 COIL SPRINGS.

Tender Forms can be obtained at the Offices of the Consulting Engineers, MESSRS. SANDBERG, 40, Grosvenor Gardens, London, S.W.1.

Non-returnable fees will be charged for each set of documents as follows : (*a*) 10s., (*b*) 5s.

Tenders due 24th August.

RELICS OF BRUNEL'S WORK.—Advertiser already in possession of interesting relics relating to Brunel's work wishes to negotiate with anyone having documents for disposal.—Box No. 8, c/o THE RAILWAY GAZETTE, 33, Tothill Street, London, S.W.1.

Universal Directory of Railway Officials and Railway Year Book

40th Annual Edition, 1934-35.

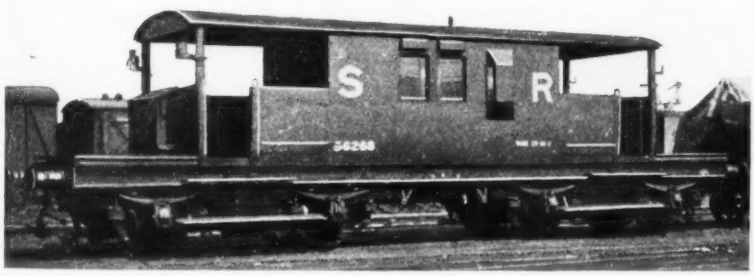
Price 20/- net. Now Ready.

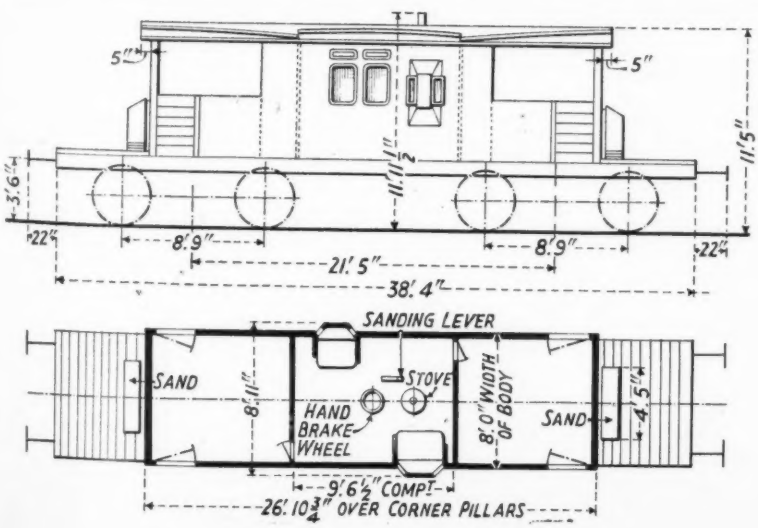
This unique publication gives the names of all the principal railway officers throughout the world, together with essential particulars of the systems with which they are connected. Much general and statistical information about railways is also concisely presented.

THE DIRECTORY PUBLISHING CO. LTD.,
33, Tothill Street, London, S.W.1.

Bogie Goods Brakes, Southern Railway

Twenty-one bogie brake-vans for fast freight service, one of which is illustrated on this page, have recently been put into service by the Southern Railway. They have been converted from the 6,000-volt a.c. electric motor vehicles which were used by the late London, Brighton & South Coast Railway on its suburban services to and from Sutton and Coulsdon, sandwiched between pairs of trailer passenger coaches, and popularly designated "milk-vans." After the removal of the electrical equipment, adaptability has proved a comparatively simple matter. The tare weight of the vans is 28 tons, so that they may be used on non-fitted as well as fitted freight services. An enclosed guard's compartment, 9 ft. 6 in. long, is provided in the centre, with the customary stove, and two seats commanding a view from projecting look-outs on each side. Sanding of the usual gravity type is provided, and both the automatic vacuum brake, when in use, and the hand-brake operate on all wheels. So far as we know, the only other bogie brake-vans in this country built specifically for freight service are one or two vans used for special service by the L.M.S.R. in the Leeds area, though the L.N.E.R. has a number of eight-wheeled vans with fixed wheelbase.





Road Transport Wages.—A comprehensive report on wages and conditions of service by a special sub-committee of the Joint Conciliation Board for the Road Motor Industry (Goods) has been formally ratified by the Board. This is the first effort, it is claimed, to organise reasonable conditions for men working on road transport in connection with goods conveyance. Something like 150,000 men are immediately involved. The report lays down minimum scales for weekly wages of adult drivers for trunk and long-distance services and three grades of local services, varying with different classes of lorries from 70s. to 45s. a week. Other recommendations in the report are a 48-hour guaranteed week, one week's holiday with pay for regular employees of 12 months' continuous service. Overtime, it is recommended, should be paid after 48 hours at time and one eighth for the first 8 hours and thereafter at time and a quarter; on Sundays at time and a half.

Railway Share Market

Stock and share markets resumed business on Tuesday with a firm tendency in most directions. Home railway stocks were subject to some irregularity, but surprise was expressed in the Stock Exchange that the investing public appeared to display little anxiety about the outcome of the wages discussions. As is often the case, it is the professional operator who reads into the future much more than is likely to happen, and, according to his book, takes a strongly optimistic or pessimistic view. The public have shown no tendency to take alarm at the labour outlook, and holders appear to have confidence in the management of the railway companies handling the position in the best interests of all concerned, whether as shareholders or employees.

Comment has been made in some quarters on the heavy falls which have occurred in quotations for some stocks, but this only has reference to the current year. Market prices rule substantially higher than the lowest level of 1933 at which many holders purchased their stock, and such limited amount of selling as has taken place has probably been done at a profit on capital account. It is now possible to buy £100 nominal of each of the junior stocks of the four big railway companies, that is, £400 of stock, at a total capital outlay of about £100. There is no prospect for a year or more of any income on these stocks (except in the case of Great Western ordinary stock), but the scope for capital appreciation is not inferior to the industrial and mining shares which many investors have been buying on the basis of a yield of only 2 per cent. When the four companies were paying dividends on all classes of their capital, £100 of each of these four stocks had an aggregate market value of over £300 or treble the present buying price. London Transport "C" stock has maintained its rise of nearly six points over the price ruling earlier in the year, and now that the interim dividend at the rate of 3 per cent. per annum is being paid, encouragement is given to long-term buyers, who are prepared to wait for realisation of the maximum dividend of 6 per cent. on the stock.

In foreign railways there was a harder tendency in Argentine issues as a result of the rise in prices of wheat and maize and the improvement in the peso exchange. The ordinary stocks of the B.A. Great Southern, B.A. Western and the Central Argentine advanced strongly, although the market was inclined to be nominal at times owing to the approaching end of the account checking large speculative buying. The preference and debenture stocks also moved up sharply.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1933–34	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1933	No. of Week	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1933	Prices: Lowest 1933	Prices: Aug. 8, 1934	Prices: Yield % (See Note)
				£	£		£	£	£					
South & Central America.	Antofagasta (Chili) & Bolivia	830	5.8.34	17,220	+ 6,000	31	419,440	316,180	+ 103,260	Ord. Stk.	26	11¾	22	Nil
	Argentine North Eastern..	753	4.8.34	8,235	— 2,073	5	39,311	52,414	— 13,103	„	14½	5	8	Nil
	Argentine Transandine ..	111	—	—	—	—	—	—	—	A. Deb.	55	40	50	8
	Bolivar	170	July, 1934	5,100	— 150	30	43,850	47,250	— 3,400	6 p.c. Db.	10	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	15	11	12½	4
	Buenos Ayres & Pacific ..	2,806	4.8.34	70,845	— 18,155	5	353,437	443,394	— 89,957	Ord. Stk.	26	97/16	12½	Nil
	Buenos Ayres Central ..	190	10.6.34	$117,800	+ $400	50	$5,340,053	$5,251,539	+ $88,514	Mt. Db.	30	10	21	Nil
	Buenos Ayres Gt. Southern	5,085	4.8.34	132,317	— 12,221	5	626,344	846,201	— 219,857	Ord. Stk.	44½	21½	29½	Nil
	Buenos Ayres Western ..	1,926	4.8.34	46,578	— 1,884	5	222,189	286,055	— 63,866	„	34½	15¾	24	Nil
	Central Argentine ..	3,700	4.8.34	131,685	— 8,357	5	649,853	758,084	— 108,231	„	28½	15	20	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	18	10	9	Nil
	Cent. Uruguay of M. Video	273	4.8.34	13,674	— 306	5	69,850	71,940	— 2,090	Ord. Stk.	20	8	10½	Nil
	Do. Eastern Extn.	311	4.8.34	3,029	+ 616	5	13,951	12,796	+ 1,155	—	—	—	—	—
	Do. Northern Extn.	185	4.8.34	1,680	+ 295	5	8,499	8,534	— 35	—	—	—	—	—
	Do. Western Extn.	211	4.8.34	1,174	— 207	5	5,472	6,143	— 671	—	—	—	—	—
	Cordoba Central	1,218	4.8.34	36,230	— 6,070	5	180,140	216,900	— 36,760	Ord. Inc.	9¼	2½	4½	Nil
	Costa Rica	188	May, 1934	16,659	— 2,382	48	197,823	213,331	— 15,508	Stk.	29	20	27½	7¼
	Dorada	70	June 1934	8,800	— 100	26	60,200	44,100	+ 16,100	1 Mt. Db.	76½	68¾	105	5 11/16
	Entre Rios	810	4.8.34	11,921	— 2,617	5	52,787	70,399	— 17,612	Ord. Stk.	26½	9	14½	Nil
	Great Western of Brazil ..	1,082	4.8.34	5,800	— 400	31	237,800	306,700	— 68,900	Ord. Sh.	23/6	1/2	5/8	Nil
	International of Cl. Amer.	794	June, 1934	$253,322	— $123,148	26	$2,719,995	$2,658,881	+ $61,114	—	—	—	—	—
	Interoceanic of Mexico ..	—	—	—	—	—	—	—	—	Ist Pref.	1/2	1/16	1/8	Nil
	La Guaira & Caracas ..	22⅝	July, 1934	4 455	+ 1,455	30	28,890	39,270	— 13,380	Stk.	16	10	8½	Nil
	Leopoldina	1,918	4.8.34	38.079	+ 8,958	31	721.114	721,159	— 45	Ord. Stk.	20¼	10	9½	Nil
	Mexican	483	31.7.34	$369.800	+ $99,100	4	$997,800	$824,200	+ $173,600	„	3	1/2	2½	Nil
	Midland of Uruguay ..	319	July, 1934	9.461	+ 716	4	9,461	8,745	+ 716	Ord. Stk.	2	1	1½	Nil
	Nitrate	401	31.7.34	9.093	+ 6,118	30	155.376	65,610	+ 89,766	Ord. Sh.	7 8/6	1 11/16	2¾	Nil
	Paraguay Central	274	28.7.34	4.750	+ 390	4	18,190	15,920	+ 2,270	Pr. Li. Stk.	72	49½	70§	8½
	Peruvian Corporation ..	1,059	July, 1934	52.617	+ 1,372	4	52,617	51,245	+ 1,372	Pref.	15¼	5	10	Nil
	Salvador	100	28.7.34	¢11,690	— ¢5,010	4	¢42.820	¢59,425	— ¢16,605	Pr. Li. Db.	70	66½	70	7¼
	San Paulo	153½	29.7.34	28.882	+ 2,154	30	919,352	908,875	+ 10,477	Ord. Stk.	102	68	70	5 11/16
	Taltal	164	June, 1934	5 950	+ 105	52	69,595	44,295	+ 25,300	Ord. Sh.	15¼	3¼	15¼	5 11/16
	United of Havana..	1,365	4.8.34	18,176	+ 3,980	5	87.587	75,100	+ 12,487	Ord. Stk.	8	2	3	Nil
	Uruguay Northern ..	73	July, 1934	1.056	— 10	4	1,056	1,066	— 10	Deb. Stk.	6	3½	4½	Nil
Canada.	Canadian National ..	23,748	31.7.34	898,776	+ 49,133	30	18.698,004	16,151,493	+2.546,511	—	—	—	—	—
	Canadian Northern ..	—	—	—	—	—	—	—	—4 p.c.	Perp. Dbs.	60½	38	66	6 1/16
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	99¾	85	101½	3 15/16
	Canadian Pacific	17,018	31.7.34	687.000	+ 35,600	30	13,585,400	12,173,200	+1,412.200	Ord. Stk.	22⅛	11	13	Nil
India.†	Assam Bengal	1,329	30.6.34	28,222	+ 4,408	13	359,997	284,659	+ 75.338	Ord. Stk.	79	70	79	3 15/16
	Barsi Light..	202	14.7.34	2.542	+ 60	15	45.450	53,385	— 7,935	Ord. Sh.	10 13/4	70	100½	6
	Bengal & North Western..	2,112	14.7.34	43.958	+ 4,171	15	805.011	776,481	+ 28,530	Ord. Stk.	292	240	277½	5¾
	Bengal Dooars & Extension	161	14.7.34	2,772	— 243	15	36,625	38,242	— 1,617	„	127	119	125	5¾
	Bengal-Nagpur	3,269	30.6.34	106,875	+ 2,557	13	1,554.435	1,398.916	+ 155,519	„	97 1/4	83 1/2	101½	3 15/16
	Bombay, Baroda & Cl. India	3,072	28 7.34	131,400	+ 11,175	17	2.726.475	2,607.225	+ 119.250	„	112	107	109½	5¼
	Madras & South'n Mahratta	3,230	7.7.34	104,700	— 10,731	14	1,674,807	1,702,346	— 27,539	„	127	114¼	126½	7¼
	Rohilkund & Kumaon ..	546	14.7.34	7.478	— 442	15	158.620	153.529	+ 5,091	„	260	225	250½	6 1/16
	South India	2,526	30.6.34	83,529	+ 605	13	1,088,775	1,048,064	+ 40,711	„	119 1/2	112	115½	6 15/16
Various.	Beira-Umtali	204	May, 1934	58 872	+ 10,741	34	399,848	322,728	+ 77,120	—	—	—	—	—
	Bilbao River & Cantabrian	15	July, 1934	2,522	+ 180	30	12,982	10,405	+ 2,577	—	—	—	—	—
	Egyptian Delta	621	20.7.34	5.913	+ 684	16	58,855	56,357	+ 2,498	Prf. Sh.	13 1/32	1¾	1⅞	5 5/16
	Great Southern of Spain ..	104	28.7.34	1,183	— 983	30	61,632	59.793	+ 1,839	Inc. Deb.	4	3	3½	Nil
	Kenya & Uganda	1,625	Mar., 1934	240.520	+ 21,064	12	638,137	606,192	+ 31,945	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	33½	40	8¾
	Mashonaland	913	May, 1934	106.858	+ 32,902	34	731,020	502,675	+ 228,345	1 Mg. Db.	91¾	42	93§	5§
	Midland of W. Australia ..	277	June, 1934	12 031	— 599	52	158,207	156,705	+ 1,502	Inc. Deb.	89	70	97½	4§
	Nigerian	1,905	9 6.34	25,537	+ 2,204	10	271,103	242,343	+ 28,760	—	—	—	—	—
	Rhodesia	1,538	May, 1934	171,670	+ 38,452	34	1,236,395	915,804	+ 320,591	4 p.c. Db.	98½	80¾	102	3 15/16
	South African	13,180	14.7.34	474,620	+ 21.749	15	7,274,905	6.406,098	+ 868,807	—	—	—	—	—
	Victorian	6,172	May, 1934	755,392	+ 15,381	48	8,479,194	8,811,604	— 332,410	—	—	—	—	—
	Zafra & Huelva	112	June, 1934	10,078	— 121	26	65,801	62.326	+ 3,475	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16.

† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. Salvador receipts are in currency.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements from July 1 onwards are based on the current rate of exchange and not on the par value.

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